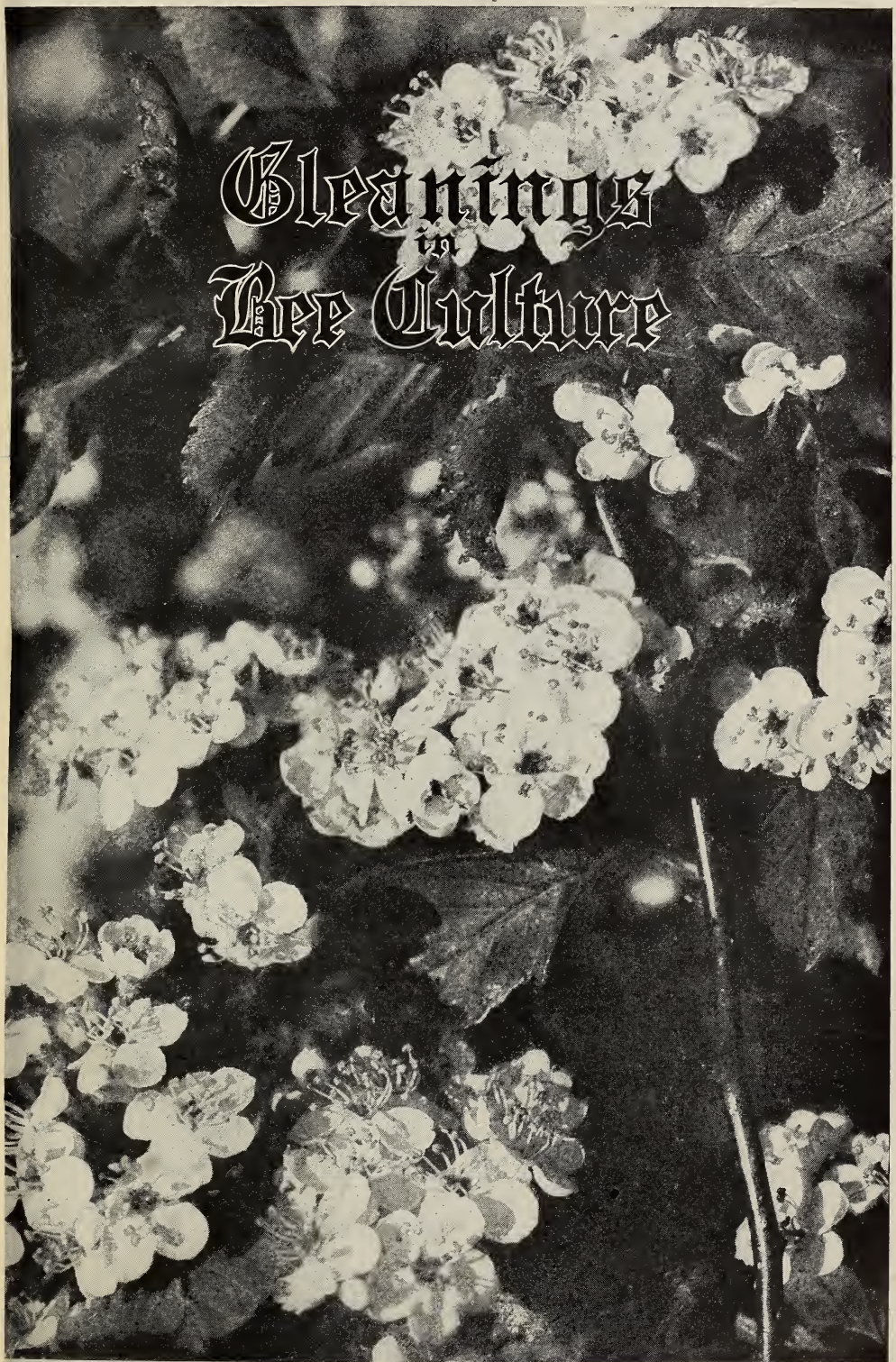
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GIFT
AUG 1 2 1915

SPECIAL HONEY PLANT NUMBER



Vol. XLIII AUGUST 1, 1915 No. 15

Southern Headquarters for Italian Queens



Photo of W. D. Achord of Fitzpatrick, Ala., with helpers, also his queen-rearing yard. Queen-house and residence in background. With six experienced men, and 600 mating-boxes, also 700 full colonies of pure Italian bees, we are able to give good queens and prompt service. Untested queens, 1 to 11, 50 cts. each; 12 and more, 45 cts. each. Tested, $1.00 each. No disease. Pure mating and safe delivery I guarantee.

W. D. ACHORD, Fitzpatrick, Alabama

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Center of business on Grand Circus Park. Take Woodward car, get off at Adams Ave.

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200 Rooms, Private Bath, $2.00 single; $3.00 up Double
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TOTAL 600 OUTSIDE ROOMS. Absolutely FIREPROOF. ALL ABSOLUTELY QUIET.

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Gleanings in Bee Culture

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VOL. XLIII. AUGUST 1, 1915 NO. 15

EDITORIALS

Our Cover Picture

Is there a more fascinating part of beekeeping than the study of the flowers on which the bees depend for their honey? And is any part of this study more entrancing than the photographing of such blossoms? We are proud of the illustrations in this special number, although we wish that all of our readers might see the clearness of detail contained in the original photographs.

Our cover picture, representing the wild hawthorn, is the work of Wesley Foster, whose article appears on page 619.

Quarantine on Shipments of Bees in Nevada

The governor of Nevada has recently issued a proclamation establishing a quarantine against all states for the shipment of colonies of bees unless accompanied by a certificate from a duly appointed state or county inspector. This does not prevent proper interchange in bees, but it will prevent the shipment of bees in car lots or in small lots from irresponsible parties from other states who have the disease. It would appear that the beekeepers in Nevada appealed to the governor, with the results stated.

The Net-weight Law, and its Effect on the Comb-honey Business

Evidence is beginning to accumulate, showing that a great many do not understand the net-weight law. They are afraid of it; and this very ignorance of its provisions, as well as the knowledge of them, is causing many to give up the production of comb honey.

We also find that some are going into the production of chunk comb honey in pails. This may be right in some localities; but we believe it will be a serious mistake to foist that kind of honey on the northern markets. As soon as it granulates (and it granulates readily) it will sell for only a little over half its former price. Chunk or bulk comb honey will granulate much more readily than honey in sections. In a like manner extracted honey will granulate more readily because of the disturbance to which it is subjected in taking it from the comb. But clear extracted honey, when it granulates, is not injured.

Ontario Association Collecting Crop Reports

As usual, Mr. Morley Pettit, the secretary of the Ontario Beekeepers' Association, is sending out requests for crop reports in the form of return postal cards, one side addressed to the beekeeper, and having on the back the following to be filled out:

HONEY-CROP REPORT TO BE MAILED NOT LATER THAN SATURDAY, JULY 31.

How many colonies, spring count?	1914	1915
Total crop of white extracted honey		
Total crop of white comb honey		

What prices have you received?

Name ..... County .....
Address ..... Township .....
Date ..... Con .....Lot .....

Be sure to report for 1914 as well as for 1915. When exact amounts not known, estimate as closely as possible. Poor crops or failures should always be reported, to keep the average right.

A system of accurate crop reporting is of inestimable value in a locality. What greater service can a local organization of beekeepers perform for its members than that of determining what the crop is and what prices are being secured?

The Editor of the Western Honey Bee Gets Some Honey

It will be remembered (see page 304 April 15, and also page 393 of our May 15th issue) we referred to our interview with the editor of the *Western Honey Bee* at his home a few months ago. We wrote him some little time ago, making some inquiries along honey-crop conditions and other matters. Apologizing for delay in replying to our letter he writes:

Mrs. B. and I, entirely without help, have (mis-)managed 381 colonies of bees (spring count); increased by natural swarming to over 500; taken off, cased, and *sold* over 500 cases of comb honey,

and a ton of extracted; treated about 40 cases of black brood and half a dozen of American; introduced over 50 young queens, and, not least important, kept the *Honey Bee* toddling along on its somewhat wabbly legs, all since I saw you last.

Thanks for all the nice things you said about us. More biscuit and honey awaits your next visit

We congratulate Editor Bixby on his success this year, notwithstanding the conditions seemed to be against him earlier in the season. While the crop of comb and extracted honey was not large, it was a great deal better than he expected, and especially for making increase from 381 to 500 colonies. But it will be remembered that Mr. Bixby was an old beekeeper in New York for many years. He then went to California and now seems to be no inconsiderable part of the honey-producing interests of that great state.

Referring to those biscuits and honey, it is almost worth a trip to California to bump up against Mr. Bixby's enthusiasm, and enjoy the hospitality of him and his better half. Those biscuits! Words do not describe them, especially when they are flavored with Bixby's honey.

If he or she is flooded with a lot of visitors who wish to sample those biscuits Mrs. B. will either have to decline with thanks or charge it all up to the editor of GLEANINGS.

Complaints against Certain Advertisers; when Patience Ceases to be a Virtue

IT is expected in the ordinary course of business that some little misunderstandings will occur between the advertiser and his customer; but all of these can be and usually are adjusted amicably. The chief complaint we have is where the advertiser of bees or queens announces that he has stock on hand ready for prompt delivery, but yet fails to deliver till some time after the order is received. In many and most cases, if the customer wants a queen he wants her at once. The delay may mean the loss of a whole colony. Sometimes the stock is very inferior—much below the advertised specifications. Again, the advertiser may fill the order promptly, but if the queen dies, fail to replace.

To receive a man's money and hold it for a month, and then deliver a queen, or several of them, is not doing business on the square. While we are not anxious to get mixed up in petty quarrels, squabbles, or controversies, we feel a certain moral responsibility in getting differences adjusted.

We may find it necessary to do a little free advertising—that is, if some people do not do better. In other words, we will publish the plain unvarnished fact or facts which will speak for themselves.

We have certain advertisers who have been with us for years and years, against whom we do not know that we have ever had any complaint; but there are certain other advertisers whose records are not altogether satisfactory. If any of our readers have not been treated fairly by any of them we shall be glad to do what we can to get a reasonable adjustment; and failing in that we may have to give somebody some free advertising. It is not fair that those who do a clean nice business year after year should be compelled to compete against irresponsible people who do not give satisfaction.

Honey-crop Conditions; Prospects for Clover Honey Improved

THE United States weather maps and reports from all over the northern clover belt show that there have been frequent rains every few days since the fore part of July, warm and hot spells following these rains, during which the bees did some work in gathering clover and basswood honey as well as sweet clover. These frequent rains have stimulated the growth of clover amazingly in the more northern states, so that even at this writing it is still in bloom and will continue up to the 15th of this month, or even clear up into September. In all of our thirty odd years in connection with this journal, we do not remember a time when white clover and alsike stayed in blossom as long as they have done this year, especially with a prospect that they will remain so in many localities the rest of this month.

Our subscribers have been very liberal in sending in reports, and we have received a larger number since our last issue than at any time in the season. These all go to show that the prospects for clover honey have materially improved. While it would be unwise to make a positive prediction at this time, there are many indications to show that this will be a far better clover year than last year, and it may even rank as one of the good years. The conditions this season have been more favorable for the production of *extracted* than of comb honey, because the flow has been slow; but there may be a big yield of clover extracted. But of one thing we are sure—there is from a light to a fair crop already in sight.

Reports with one or two exceptions show that basswoods have yielded well where any

are left. Sweet clover is more abundant this year than for several years back. The frequent rains have given it a big boost; and some of the white-clover honey will have a slight flavoring of sweet clover. A little of this honey in clover always improves its flavor; and those who have a combination of the two will probably secure fair prices.

Most of the white-clover honey will come from the following states: Northern Ohio; parts of Pennsylvania; Vermont, Michigan, Wisconsin, Minnesota, Illinois, Iowa, Missouri, and Kansas. In all of these states there will be spots where there will be no honey. Most of the poor reports are from the southern states. In Delaware, Maryland, and New Jersey, as well of a larger part of the New England states, there will be an almost complete failure of honey. The same is true of most of the southern states south of the Ohio River. Reports are unfavorable from Oklahoma, south Texas, and parts of Oregon and Washington. In the two last-named states there have been too many cold rains and too much chilly weather.

In Texas it has been the reverse—too dry and hot.

California seems to be coming ahead much better than the early reports indicated; but still it cannot be claimed that the aggregate yield has been up to the expectation of its beekeepers. Some have secured good crops; but the great majority have only from poor to fair yields. But enough has been secured so that already a couple of carloads of sage has gone east. This will be shortly followed by alfalfa from the Rocky Mountain states. If the yield from eastern clover should prove to be large it would make a slight slump in the price of alfalfa and California sage extracted. But of this no definite statement can be made—probably not before our next issue or even till the first of September.

Prospects for buckwheat honey are very good in those sections of the country where it is grown—particularly in New York.

For some reason we have almost no reports from Canada. Whether this indicates a failure of honey or not we do not know; but as the conditions have so materially improved in New York, northern Michigan, and Wisconsin, we should naturally assume that the same atmospheric conditions would favor at least a light crop in Ontario, Canada.

Reports are not numerous from the Rocky Mountain districts in regard to the probable yield of alfalfa honey. But there seems to be a sort of under-current of feeling that there will be nearly if not quite the same yield that there has been formerly. As a general proposition the irrigated regions of the Rocky Mountain states are more sure of a crop than almost any other part of the United States.

PRICES.

At the present writing it would appear that prices on first quality No. 1 and fancy *comb* honey will be firm. Whether they will hold up to last season or not we cannot say. Prices on clover and alfalfa extracted, of best quality, will probably be a little easier than last year, although unfavorable weather during the rest of this month in the clover districts might give them an upward trend.

Reports from most of the states south of the Ohio River have been decidedly unfavorable. The cold backward rainy weather in June and the fore part of July prevented the bees from getting any honey; and when the weather warmed up it seemed to be too late for the clovers to do much good. Most of the reports from the northern clover states, if we except the New England states, and Delaware and New Jersey, are good—very good. Most of the poor reports come from the southern states south of the Ohio River, going as far west as Texas.

Prices on southern honey on account of the general failure in the south ought to be firmer than last year. They cannot be weaker, that is sure.

How to Get a Cheap Automobile Truck for Beeyard Work

We have been using, for two years back, a regulation automobile truck with our outyard work. It has a capacity of 1500 lbs. weight and at a speed of from ten to twenty miles. At the maximum speed the engine has to go at a terrific rate; so the speed in practice is not much over fifteen miles an hour. This however, is three times as fast as a team can go.

This year we rigged up one of our old five-passenger automobiles (an Overland), 35 horse power, which has been used for five or six years. Last winter the engine and the running-gear work were overhauled, the body removed, and a regular wagon-box or truck-box was substituted, at a small cost. In our general beeyard work it was our intention to use this built-over fast-speed truck in preference to our regular automobile truck of slow speed. As a matter of fact, the former is oftener used; while the touring-car truck will not carry more than half the load, it goes so much faster and easier that we have found it more profitable to use. It is seldom that we desire to carry more than 700 lbs. weight; and the fact that it has an

economic speed of from 25 to 30 miles an hour makes the distance between beeyards comparatively short. The larger tires, the larger wheels, and better springs, enable the boys to go more in comfort, and with less shock and jar on the combs, when bees are removed to an outyard. We found, also, that 700 to 800 lbs. is about all that we desire to carry at a time. By doing a little head work we can plan to carry a good many tons of freight in a season. We are always carrying something. When we get into the extracting season, one big extractor with a complete outfit can be put into this fast truck, thus saving the expense of an extracting-outfit at each yard.

Good second-hand five-passenger automobiles can now be purchased at from $150 to $200, and $50 ought to supply such a machine with a truck body with high sides. Never buy a second-hand automobile without getting the advice of a disinterested expert. A good machine should not cost to exceed $250; and a second-hand automobile truck would cost twice that, nor would it begin to be as serviceable. Fast speed and comparatively light loads are more practical than a slower speed and heavy loads for ordinary outyard work. At other times the touring body can be substituted for the truck body and the whole family take a ride.

For a picture of our converted touring-car automobile truck see Fig. 4, page 590, of our last issue.

Going too Far with Live-bee Demonstrations

We have just received a newspaper clipping relating an incident where a beekeeper has been giving live-bee demonstrations; and was severely stung. It seems he had been advertising that he would "take a bath in live bees." He stripped himself to the waist and poured the bees into a pan and then poured them over his bare back and chest. There is nothing so very awful about that kind of work if it is properly done. But the average person makes a bungle of it. In the first place, he should take only gentle bees, and in the second place he should not use the same bees more than once; and in the third place he had better not strip himself to the waist. Bare arms, head, and neck "will astonish the natives" just as well as the bare back and chest; and the danger of being seriously stung is not nearly so great.

It appears that our operator referred to in the clipping was so badly stung on the bare back on one of these occasions that the doctors had to work over him half the night before he could be relieved. Then, according to the newspaper report, he proposed to go right into another demonstration the next day.

We cannot too strongly condemn such foolishness. While there are lion-tamers who can stick their head in a lion's mouth, too many have their heads crushed to make the practice safe.

We have given some two hundred live-bee demonstrations, and with one exception we have never been stung more than two or three times all told. The exception referred to was where we were foolish enough to borrow another man's hat. The hat proved to be an old one, literally soaked with sweat and dirt; and when the bees were dumped into it they immediately showed their aversion by boiling over; and when the hat was placed on our head the bees stung us, not once but several times. Of course we removed the hat and gently combed the bees off from our head as though nothing had happened, and went on with the lecture, and no one was the wiser; but next time we made up our mind that we would use our own hat.

There is no need of one being stung at such demonstrations providing he does the thing properly; and a live-bee demonstration will draw a crowd for the purpose of selling honey as will nothing else.

We take a gentle strain of bees and shake them into a tin dishpan. Then we roll them over a couple of times. We next gently run the hand into the mass of bees, taking care not to pinch a single bee. The movement must be very deliberate. It takes about a full minute to pick up a handful of bees. To push or crowd the bees too fast will cause them to sting. A common dishpan that is slightly greasy is better than anything else. The bees cannot stick to it, and it is our usual plan to roll the bees into one hand. There is no danger of being stung if one is careful not to pinch the bees. With the handful of bees we walk down into the midst of the audience, and explain why they do not sting. Following this we shake the handful into our own hat, then place the same on the head, and continue the lecture. We have sometimes put a few bees in the mouth and blown them out. While we have never been stung more than once, we consider this an unnecessary demonstration.

A couple of years ago, for the benefit of the moving-picture men, two of our men offered to strip to the waist. We then took a large panful of bees and poured them over the backs of the boys. In the mean

time the camera man was catching the whole performance. But a couple of the boys were stung, but not bad enough to cause any trouble—two stings in all being the number received.

The average beeman should be warned against this kind of performance. Where one is immune to stings and understands the job, there is not much danger; but look out for the first time.

Temper of a Colony of Bees Dependent on Locality and Environment as well as Weather Conditions

DID you ever notice that bees in an open yard, without shade or shrubbery, are apt to be crosser, almost invariably, than the same bees or the same strain of bees located in a grove, orchard, or in any position where there is low shrubbery sufficiently high to screen one hive from the other? When the Texas shipment of bees arrived at Medina we placed them partly in the home yard with its grapevine trellises, and partly in our outyards, most of which have no shade. It was very noticeable that the Texas bees were much crosser at the outyards where every hive is exposed to plain view than the same bees (or strain of bees rather) at the home yard screened by the grapevine trellises. These vines were anywhere from five to seven feet high, and about four feet wide, and they stand immediately back of or on the south side of the hive. If the operator happens to strike a cross colony, the bees that have offered attack soon lose track of him because he is screened by vines out of their sight when working the other hives. On the other hand, if the operator happens to stir up the bees at an outyard where the view is unobstructed at every hive, those same bees will follow him about until he finishes his work at the yard. They will attract other bees, with the result that he will receive more stings than he will from the same strain of bees at the home yard that lose sight of the operator as soon as the hive is closed.

Our grapevine-trellis apiary affords a screen and protection to our boys in a way that we do not have at the outyards; and even when those outyards are in groves or orchards, the bees are not quite as easily handled as those in the home yard where every hive is screened behind a trellis of grapevines.

At the ordinary yard it is practically impossible to find a better spot to afford protection than these yards screened by low shrubbery or by an orchard. In locating yards it is better to place the entrances as far as possible from a cultivated field. A span of horses switching their tails may obstruct the flight of the bees, thus causing trouble; so we are obliged at times to select an open spot of ground where every hive is visible from every other hive. The ideal location for any yard is a spot not near the general highway, remote from cultivated fields, with individual screens for each hive in the form of vines or low shrubbery which will cast its leaves during the cold part of the year, so that the warm rays of sunshine will be available when they are most needed, and become shut off during the middle hours of the day in hot weather when they are a detriment.

Permit me to add that Ernest submitted the above to me before it was put in type, knowing what I had in mind when I planned a hexagonal apiary with a grapevine for shade on a small trellis for each hive, something like forty years ago. At the same time, I experimented with different kinds of grapevines, and found the Concord less trouble to train as I wanted it than any other variety. Most other vines require too much pruning and clipping to keep them within bounds. It is gratifying to know that my convictions at the time have been "proved out."—A. I. R.

Why Bees Work on One Species of Flower at a Time, and Neglect all Others; an Interesting Study

On page 519 of our July 1st issue we spoke of that big field of yellow sweet clover near the home apiary. We went over to see it a great many times. The low and contented hum of the bees, thousands and thousands of them as they went through the blossoms, was something worth seeing and hearing. But all through that sweet clover there was alsike, for both were sown together.

We noticed that the bees that worked on yellow sweet clover paid no attention to the alsike. This same fondness for the same species of blossoms has been noticed in all the bee-journals for years back; but long, long before the observation was made in the bee-papers, Darwin, following Aristotle, had called attention to the same remarkable specializing on the part of the bees.

One day we spent nearly an hour to see if we could detect a single bee that would go from sweet clover to alsike or from alsike to sweet clover; but not once did we notice a single case.

Admitting that the bees do specialize (and there can be no question on this point), why do they do it? The suggestion has been made that a young bee, when it goes out into the fields, gets into the habit of going to a single species, and it keeps up that habit so long as that species gives up its treasure. But why should it not take a sip here out of one blossom and a sip from another entirely different species, and thus have a little variety of flavors? The suggestion that one bee finds it more convenient to work a single plant and another for another because they learn how at the beginning, does not altogether satisfy us. Is it not more than likely that the great Creator might plant an instinct that works to the advantage of the insect as well as to the vegetable world? The very fact that one bee gathers only one kind of pollen or nectar on a trip makes it possible for that bee to bring about better pollination among those particular plants than if it worked hit or miss among a dozen different flowers that might be in bloom. Mixed pollen from different species would not pollinate a particular species. For instance, apple-trees, while of all one species are of different varieties. In order to get good crops, fruit-growers know that they must mix the varieties. The same is also true of pears, peaches, and a great variety of stone fruit. The pear-growers know that it is not good practice to put the Bartletts all by themselves, the Seckels by themselves, and the other varieties by themselves. There must be one row in alternation with another in order to get the best results. The same is true of apples and other fruits. The busy bee comes in, and goes from one variety to another, bringing about cross-pollination; but bear in mind these apples all belong to the same species. The very fact that the bees follow that habit of working on only one species at a time renders it possible for them to carry only one kind of pollen at a time, thus bringing about a better pollination than if they carried a mixed pollen.

It cannot be argued that the bee has in mind the production of a big apple crop for the benefit of the fruit-grower. Nay, rather, it is concerned only with its own need of supplying nitrogenous food to its young. Would it not seem then that the allwise Creator had implanted an instinct by which the bee, for a reason of its own, which we cannot discover, would do the very thing that would help out the plant world at the same time?

We find all through nature a beautiful harmony. Sometimes man disturbs that harmony, with the result that disaster follows. Certain plants, by a display of color, nectar, pollen, or all three together, invite the attention of certain moths and butterflies. Others seem to attract the diptera, or certain flies, while the blossoms of edible fruits and certain grains seem to be especially adapted for supplying bees with a food that they must have.

Some, perhaps, may doubt whether there is an "understanding" between the animal and vegetable kingdoms, or, to be more specific, between the bees and the fruit-trees, yet how else can we explain this beautiful adaptation unless the allwise Creator has brought this about in order that his great creation, man, might enjoy the product of the hive as well as that of the apple-tree?

There is a beautiful adaptation between bird life and plant life. Destroy the birds, and our useful plants and trees would perish from the attacks of injurious insects. Without food for man, he would soon become an extinct species along with all other forms of life. If we go into certain localities we see certain birds and certain plants and certain animals all work together in harmony.

On one of our western trips we asked why the ranchers did not kill off all the coyotes. They said it was for the simple reason that the coyotes kept down the jack rabbits, and the rabbits would be a pest unless there were something to hold them in check. If the small boy with his toy gun were allowed to shoot birds indiscriminately we should soon be overrun with certain insect pests.

If we reverse the rule we find that if we try to grow more fruit than the natural bees in the woods can take care of, much of the fruit will not mature. A few years ago when cranberries were grown in the Cape Cod region (about ten or twenty acres), it was discovered that the big plots would not yield in proportion as the small ones did. When bees were imported into that locality—enough so that the balance of Nature was restored—they could grow as many cranberries per acre in a ten-acre patch as they formerly could on a half-acre.

Perhaps this may seem like a long diversion from our original theme; but it only goes to show that the allwise Creator has brought about a working balance; and in order to keep up that working balance bees have been taught to specialize in endless ages until the instinct has been so thoroughly implanted that it is compelled to bring about perfect pollination that could not be accomplished indiscriminately in their quest of food for their young.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



My bees were on the verge of starving in June; clover plenty abloom, but too cold for flight, and I fed much as described on p. 522, only I used sugar syrup and poured it on top of the *sections*.

H. P. Kirby writes that for bee-hunting purposes he uses vinegar instead of water to dilute honey because it attracts bees more strongly. He also says that vinegar added to sugar syrup greatly increases its attractiveness, which may sometimes be quite an item.

B. F. Averill speaks of bees gnawing basswood splints, p. 538. If given when bees are storing, and the bees build comb over them, I have never known them to be gnawed afterward. If they are given when there is no storing or building, the bees are likely to gnaw them, and, what is very much worse, the foundation is badly gnawed.

More and more I am learning that I mustn't set down my experience as the experience of every one. The Byer-Chadwick discussion brings up another point of difference. When friend Chadwick's bees go queenless in spring he expects laying workers. I've had many a case of laying workers, but I don't remember a single case in spring. By the way, friend Chadwick, you say, p. 525, "as a last resort, a worker is chosen to perform the functions of a queen." Did you ever know a case of a laying worker and not a whole lot of 'em?

J. L. Byer says, p. 440, he has heard queens quahk in a box in the postoffice. First time I ever heard of a queen quahking outside a cell. But I know no reason why she shouldn't. Some have said quahking is the same as piping, only muffled because in a cell. But the length of time of the notes is entirely different. [If you were in an office where four or five dozen queens were lying on a desk preparatory to being sent out in the mails you would hear a good deal of piping. We have heard them answer back and forth time and time again.—Ed.]

A. I. Root, last year you sent me dasheens so late they made little growth. I wintered them in the cellar in the same box with *Caladium esculentum,* or elephant's ear. I planted all this spring, and they didn't come up till July 1, and I can't tell by their looks whether to admire their beauty or to eat 'em. Fact is, except for size I don't see but dasheens are just as pretty as caladiums. From the name, "esculentum," one would expect the caladium to be edible. But I've tasted it raw, and it bites like an Indian turnip. Cooking might correct it.

C. H. Cargo, I've studied no little over your letter, p. 518, and wondered whether you mean just what you say. You want "a healthy sentiment created that refuses to allow any party to try to monopolize our voters, but insists on every party," etc. To my certain knowledge there's been a healthy (?) sentiment of that kind for 40 years; our forces have been scattered, and the devil has chuckled over it. If we wait until *every* party has a prohibition plank in its platform, we'll wait some time. Don't you believe if we had all got together in some one party we might have finished up the saloon before this? [The principle is all right; but the trouble is, there has been a condition and not a theory, and that condition has been that the great majority of the voters would not desert their old party. Whether they will in the future remains to be seen. In the meantime, regardless of parties, the temperance question from an economic standpoint is moving forward by leaps and bounds. Insurance companies, manufacturers, bankers, railroad companies, business men, city property, country towns and country districts, are finding out from a financial point of view that they cannot afford to tolerate the saloon. Indications at present go to show that financial considerations plus moral and religious reasons will oust the saloon in the near future. "Safety first," and the cost of damage suits as the result of unsteady brains or brains crazed by liquor, are having a tremendous effect on the big corporations of the country. Moderate drinkers are not wanted, and regular drunks are nuisances. The labor unions are beginning to join against the common enemy. Banks that formerly bought brewery stocks as a good investment are discovering that they are the poorest kind of security; while many of them have stood with the wet crowd because of their holdings, they are now dumping those holdings because they are not worth the paper they are printed on. Great breweries are going into the hands of receivers. Saloons are voluntarily going out of business because they don't pay. Revenue receipts fell off more than seven million dollars in the Peoria district the past year because of the movement toward the elimination of whiskey from the life of America. Peoria is the greatest distillery city in the country. The mighty wave of public sentiment is getting in its work. State after state has been going dry.—Ed.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



Does anybody know a better way to celebrate a holiday than picnicking out in the hills, visiting a beeman or two on the way? It was by far the best thing we could think of to do on the Glorious Fourth. There were four of us, the other two also with bee sympathies, one to the extent of five colonies as a nest egg down in Alabama. The day (Monday, the 5th) was perfect, the country fresh and beautiful from recent rains. Out in the hills, to be reached only by a delightful drive, we came to one apiary of one hundred and twenty odd colonies, the strongest-looking colonies I ever saw. But the crop was as dismal as our own, only on a larger scale—practically a failure; viewed in the light of expectations, a distinct failure. After watching the bees and talking shop awhile, we drove back out of the hills to the pike again, and turned off to the river. There we were ferried across stream, and headed according to the ferryman's directions toward another bee-yard. The road ran along the river, between a tangle of growth that brushed our faces on the right, and an apparently interminable field of corn on the left. Neither one seemed to have an end; and as it was getting late, and we were all developing a prodigious interest in the generous lunch-basket and the freezer of peach ice cream, and were reminding one another of the ferryman's ominous remark that we had better be back by sundown if we wanted to get back to our own side, we gave up and turned back. Whatever that farm may or may not yield as to a honey-crop, there are four of us prepared to testify to the excellent corn prospects.

Unfortunately, this honey-crop failure seems uniformly true of the immediate Nashville vicinity. The winter stayed too long, the bees built up too late, the clover came too early, the rains came too late, there was too much bad weather during the clover bloom.

And perhaps there wasn't much nectar in the clover blossoms anyway. Of that I'm not quite sure. Anyway, the most of what little honey there is seems to be locust. And there are many disappointed beekeepers. One man says he will not sell enough honey to pay for the supplies purchased last winter. "Bees haven't done a thing," others say. Our own crop is practically nothing; and as we have been making some nuclei, we expect to be feeding soon, which, indeed, is likely to be the lot of many of us here. I hope this disastrous shortage may be quite local. Some parts of the state, our inspector reports, show very fair results.

SONG OF THE YOUNG QUEEN-BEE.

Out of the warm, close, waxen cell
I have come, I have come!
Out of mysterious silence and growth
Straight into life I have sprung!
And the far, dim past of my ancient race
Leaps in my blood, and I know my place
In the midst of the motion and hum.
All these, they are thousands, and I am but one—
I am queen—queen!
Vivid and slender, with gossamer wings
Woven of shimmer and sheen.
And something within me, with urging and thrill.
Makes me a-quiver my fate to fulfill.
I am queen, queen, queen!
Not you, royal sisters, astir in your cells,
But I—I!
Who willed it? I know not; but this thing I know—
I shall live, you must die!
You too are slim-bodied with cob-webby wings,
But passionate life surges through me and sings,
"It is I, I, I!"

* * *

I not only agree with Mr. Doolittle, page 486, about saving bee-journals, but I would especially emphasize the thought of reading them thoroughly before you save them. Read them thoroughly, and, unless you object, mark them too. At the end of the year you will get an index; but you may want to refer to them many times before that. Read with a pencil in your hand, and you can check the things you care especially for. Then make an abbreviated notation on the white margin of the cover, and then how easily you can find things! Glancing at random through our 1915 copies of GLEANINGS, I find one copy marked 242, inc (increase); 236-7, f. b. (foul brood); 249 bnd'g jrnls (binding journals. Some of them, evidently marked hurriedly, show merely page numbers, as 291, 307, 381, 397, etc., while on the pages themselves are checkmarks calling attention to the paragraphs of articles of particular interest. The July 1st cover says, "Doolittle on Honey-getting, page 259." None of us are in danger of knowing too much, and constant study is surely well worth the effort.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.



CROP CONDITIONS

In the Rocky Mountain region, honey-crop conditions are still up in the air, so to speak. In Idaho many discouraging reports have been received. Wind has interfered with the flow in the Idaho Falls district, and feeding was done until the first of July, and in some places probably later.

Cold, cloudy, and rainy weather in the Twin Falls district kept the bees from taking advantage of the first crop of alfalfa. Bees went backward in May and early June, but feeding was not necessary as late as in some districts. Prospects are good now (July 10), and early July saw many colonies building queen-cells, and most colonies will doubtless make some surplus honey.

Reports from Utah are discouraging in the extreme on account of the ravages of the alfalfa weevil.

Mesa County, Colorado, has had no flow from first alfalfa, and grasshoppers are reported very bad, with prospects poor.

Garfield County reports a good flow early in July, and fair prospects.

Delta County conditions are fair to good with indications that some new comb honey will be taken off by the middle of July.

Conditions are backward in Montrose County, with nothing favorable to report.

In the Arkansas Valley new honey is reported being stored in the hives in and about Canon City and in the Ordway district. From Rocky Ford to Los Animas conditions are very much behind what they should be, and little new honey showing.

In the lower Arkansas Valley things are a little better, bees having stored some honey from first crop of alfalfa, only to go backward early in July; but to-day, July 10, things seem to be picking up, and some colonies are beginning work in the comb-honey supers and extracting-chambers.

Swarming has begun in the southwestern part of Colorado, and prospects for a surplus crop are fair.

In northern Colorado prospects are the poorest of any place in the state. This condition is largely caused by the fact that the bees are not ready for the honey-flow, or very few of them are. In large areas there was a dearth of pollen and also a lack of stores. Many beekeepers did not feed sufficiently; and where pollen was scarce it did little good.

If Boulder County has half a crop of honey I shall be agreeably surprised. Many colonies have gone backward until they are little more than nuclei.

Sweet clover looks fine; and with good weather appearances might change, and a fair crop be harvested; but a nucleus in July cannot be counted on for surplus.

To sum up, a few restricted districts will have a crop of honey this year; but a general good yield is past hoping for.

NON-SEPARATORED OR SEPARATORED HONEY.

Mr. Latham, page 530, July 1, says that, after weighing thousands of sections of both separatored and non-separatored honey, there is no more variation in weight in one than in the other. Did Mr. Latham weigh his own honey, or was it the honey of the average beekeeper? I will controvert the statement if he will apply it to the average producer of marketable comb honey.

I have seen sections of non-separatored honey, practically all sealed, weighing not more than eight ounces. I have not seen any separatored honey as light as this. I have seen non-separatored honey, completely sealed, weighing 21 ounces; and I have never seen a separatored section of honey weighing over 17 ounces. I have in mind the 4¼x4¼x1⅞ two-beeway section.

If as good results can be secured as Mr. Latham says he gets, there is ground for the belief that some commercial honey-producers would profit by discarding separators; but it will require closer attention to super work than most honey-producers give; and the extra time taken would doubtless offset the advantages.

I agree with Mr. Latham that all comb honey should be cartoned; but why does he refer to the bottomless-topless carton when you are supposed to slip the section in from the side, and the two-beeway section then practically seals the package? It is, of course, not as closely sealed as the regular carton.

I think the argument that the flat surface of separatored honey tends to strengthen the idea that comb honey is manufactured is a poor one. I have never heard it. The most damaging idea the public gets is the comb foundation used by beekeepers, which many people think is manufactured comb, and the fact that often beekeepers buy large quantities of sugar to feed the bees. Added to this, the granulation of honey has its effect on the public. These are our obstacles.

Take the product of fifteen beekeepers who use separators and fifteen who do not, and pack both lots and size up results.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



It seems that our eastern brothers have been getting a taste of the same variety of weather that reduced our orange flow at least 75 per cent.

* * *

Spreading brood is rarely necessary where a young queen is at the head of the colony. Their first operations will extend the brood-nest just about as fast as their bee force will permit. Even the fault of the bees blocking the way with pollen is greatly reduced with a young queen. Some way they seem to get matters to move along much better than with an old queen.

* * *

The value of wired combs was most forcibly illustrated to me recently when four colonies that were being moved on an auto truck fell with a thud. Aside from slight damage done to few combs, and the crushing of a few bees, the accident was not serious. With unwired combs the whole lot would have been a mass of broken combs and dead bees, making the loss almost complete.

* * *

My queen-rearing this season has been carried on by Mr. Byron Crawford, who was with me last season and part of the previous one. He has become interested with me in the bee business on general lines, and I hope he will remain with me for many years to come. While he has been out of his teens only a few years, he has a store of knowledge on bees of which any young man of his age might well be proud.

* * *

Judging from scattering reports from various localities in the southern end of the state, there will be no very large crop of honey in the sage districts this year. Had this been the year for a sage flow we would have seen the largest crop of sage honey in recent years. Some are inclined to the belief that they have a sage crop this year; but the fact remains that they secured only a comparatively small amount, considering the immense rain, and late rain at that.

* * *

The value of young queens, and what they can accomplish, has been more thoroughly proved to me than ever during the last few weeks. Requeening was begun with colonies that were not requeened last season, and that failed to come up to standard. With vigorous young queens these colonies have forged to the front, while colonies with last season's queens were slowing down in their brood-rearing operations and decreasing in numbers. The fact most significant to me was that where a vigorous young queen began operations, even the worst honey-bound brood-chambers were cleared for her, and the honey moved above the excluder.

* * *

We have had some perplexing experiences during our operations of requeening. Many cells have been lost by being torn down in mating-hives. It a protector was used then the queens would be balled for a few days, or even after returning from the mating-flight. Colonies hopelessly queenless have killed as many as three laying queens. The only plan of introduction that has a score of 100 per cent safe was by the method recommended by Mr. Doolittle. But just to prove that new conditions are met from time to time, and that the bees are sometimes on their good behavior in spite of all precedents, I will state that only a few days ago Mr. Crawford and myself discovered two young queens less than a month old laying in the same brood-chamber. We have placed one above an excluder over the other, and will see if they will remain so during the winter, or whether one will eventually disappear, as is so often the case where two are left in the same hive during the winter.

* * *

Late in May I purchased twenty-three colonies of bees at what might be considered a very low figure. A few were in frame hives. Nearly all the frames were not wired, and in a part the bees had taken the liberty to build the combs crosswise of the frames. Most of them were in any kind of old box that happened to be at hand when the swarm was captured, ranging in size from a small soap-box to an orange-box. Twenty dollars was the price paid for this conglomeration. Hives were brought from the Tremont apiary with full sets of combs and an excluder. The bees from a box were smoked and jarred out of the box on to a set of frames. As soon as the queen was down, an excluder was placed over the hive and the box placed over the excluder. In three weeks the brood had all hatched from the boxes and they were removed, thus making a complete transfer without the loss of any time in the operation. If we had followed the old method of transferring combs to the frames the price would have been excessive.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



I am glad to see that recommendation of Carniolans, on page 520. Although I have given them up pretty well, owing to a European-foul-brood scare, yet I still really believe a good strain of Carniolans to be the very best bee, all things considered. The swarming propensity is overestimated in most cases, and we never had any trouble to speak of, but, of course, we used large hives.

* * *

F. C. Greiner's article on page 549 in the matter of foul brood and the effect it has on the industry of beekeeping is interesting and instructive. But I cannot refrain from making a kick because he does not label the brand he has been dealing with. This is a common error; and, while excusable on the part of a beginner, it is hardly so in the case of Mr. Greiner. Many of us will know at once on reading the article that he is referring to European or black brood, but others will not think of that, and perhaps try the plans given with our old friend American foul brood. The point is that, while the treatment he recommends is no doubt up to date for the disease he has in mind, for American foul brood it would be worse than useless. This criticism is made in all kindness; and in mentioning this particular article it is simply to emphasize the fact that a lot of similar mistakes are being made all the time, to the confusion of many who are not posted on the two diseases which are so radically different and require such different treatment.

* * *

As predicted in last batch of "Notes" for this department, the clover flow here in York County has been very light. Absence of showers early enough, and too much cool weather, is responsible. While we had abundant rain during last week, at this date clover is about over and the surplus is very light. Bees here in many cases were in poor condition for what flow we had, as the very bad weather that lasted all through May and much of June caused a heavy loss of field bees; and when clover came on we had hives filled with brood and baby bees, but a lack of fielders.

Basswood never looked better, but we have little. In localities where there are lots of trees there should be a good chance of some nectar from that source. This is written July 7, and the bloom on basswood will not be open for a week. At our north location chances are yet good for a crop from clover, as it is later there and much more abundant. Basswood buds up there which gave a great showing were all frozen in the late June freeze. Buckwheat in York County is a heavy acreage as compared to other years, and much is sown early, which will give a long time of blossoming. Some of it is so early that if, by chance, we should get a basswood flow the two will likely go together.

* * *

Having mentioned the large yard we have up north at various times, some seem to think that these far-north locations are a sort of paradise for beekeepers. This opinion is gleaned from considerable correspondence that has come to me lately. Northern Ontario has lots of room for beekeepers, and in some seasons the country gives good returns from the bees—no question about that. But it is well to remember that, the further north one goes, extremes of temperatures, especially in regard to late spring and early fall frosts, are far more apt to cause damage than in more southern localities. Our north yard is only 100 miles from Toronto, and yet the difference in these matters is considerable as compared to our home apiaries not far from this city. For instance, the frost of May 26, already mentioned, did little damage to honey-producing sources at home, while up at the north yard, where we had a splendid showing for basswood, all the buds were frozen from the trees.

Then, again, there seems to be some confusion on the part of some as to the location where we have our bees; and it is well to remember that Ontario is a big province, and our bees are not in the northern part at all, strictly speaking. While our apiary is but 100 miles from Toronto, the great clay belt now being settled is over 300 miles north of Toronto at the south side of the tract running nearly as much more north and hundreds of miles west. Up there, clover, willow-herb, and raspberries are the main sources of honey; and while there is generally lots of honey flora for the bees, as before intimated, weather conditions are more uncertain one year with another the further north one goes.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



NEW QUEENS IN THE ANNEX

"When a hive is so full of bees that the bees begin to think about clustering out, they will crowd into an empty space which may be about the hive, much sooner than they will go on the outside for the same purpose. Suppose that as soon as the sections are filled with bees, and before the swarming fever comes on them, we bore a three-inch hole in one side of the hive, and on the inside put a piece of queen-excluding metal. Bore a similar hole in an empty hive; cover it with queen-excluding metal, and set this empty hive right up against the other having the bees in it, so that the holes match. Then put a queen-cell in this empty hive. Now the point I wish to know is, will there not in time be a new swarm of bees in that empty hive?"

I doubt whether this will work just as you have outlined it; but there may be something in it, if the plan is modified. From past experience I am convinced that, if the bees did go into the empty hive on the return of the queen after mating she would enter the wrong hive, and in all probability be killed or balled by the bees until crippled and spoiled for usefulness, even if she finally superseded the old queen.

But what is there to hinder putting one or two frames of brood and one of honey in the empty hive and then giving the queen-cell? I would not warrant the bees going freely from one hive to the other to care for that brood and queen-cell. If the young queen should consider the old queen in the parent hive her rival, so as to go to the excluding-metal and there challenge her to a combat, the bees would doubtless ball her till she was no good, or she would turn up missing, as is usually the case when such a combat is challenged.

Many claim that a queen emerging under such conditions will be cared for just the same as if she were in an isolated hive or nucleus, and in due time become fertile and go to filling the combs with eggs. From scores if not hundreds of attempts to work out the plans with dual queens in a hive, as given by the late Mr. Alexander and others, my experience has been that this cannot always be depended upon. In having queen-cells cared for and reared above and behind queen-excluding metal, I have had the best of success with the mother queen doing duty just the same as if her progeny were not perfecting them by the score on the other side of a perforated metal. It is only when the young queens from these cells begin to assert their "queenhood" that the trouble seems to arise.

"Would not the plan as I have given prevent the original colony from swarming? If so, this will make unnecessary some one staying at home Sundays and other days to watch for swarms, besides proving a boon to those having out-apiaries which they wish to work for comb honey.

Well, as I said before, I do not think it would work just as you gave it, but by using the suggestion given, as I have explained, I see no reason why it should not stop swarming entirely. As soon as the young queen lays, or before the old colony is strong, take one or two more combs of brood from it and put in their places frames of empty comb or frames filled with comb foundation, so the bees will have no chance to build drone comb, quitting the brood thus taken out over into the hive having the young laying queen. As soon as the flowers from your main source for surplus honey open, the original colony should have the surplus arrangement put on, in which are "bait sections." The first honey will be put in the sections rather than the combs in either hive, thus making your prospect of success even greater than it could be otherwise. At the same time, sections should be placed over the part of the new hive where the brood and combs are, so that in no case the bees lack room to store all the honey there is coming in. I would have these sections in every case filled with foundation, so that the bees would have no desire to swarm by being loath to build comb.

Occasionally, or as often as the out-apiary is visited, move more frames of brood over to the new hive, putting frames filled with foundation in place of the frames taken out each time until the new hive is full, always putting on sections in the case of either hive, as the colonies seem to require. If the new colony is a little slow in taking advantage of the sections, give bait sections to this also, as the results will be enhanced by getting the bees at work in the sections at the earliest possible time as regards the honey-flow. When well at work in the sections, and in the early part of the flow, raise the first super and put another under it, to induce the filling of as many sections as possible.

GENERAL CORRESPONDENCE

BLOOM IN THE COLORADO FOOTHILLS

BY WESLEY FOSTER.

For three years I have followed the practice of moving my bees to the foothills for the spring bloom. Until this year it has yielded very satisfactory returns. In 1913 it was possible to double the number of colonies by June 15, and have all colonies ready for alfalfa and sweet clover in June,



Thimbleberry. A bee can be seen on the blossom in the center.

July, and August. This moving was and is expensive, as two moves are worse than a fire, they say; but when bees are concerned, it hardly works out so disastrously.

I have this spring moved in only 160 colonies; and while they have done well, the flow from white clover and dandelions has been good where my apiaries are permanently located, so that the value of moving has not been so very apparent. The late hard freezes in May and June destroyed the nectar-secreting powers of the flowers in large part. Early in the season we had fine prospects from the horsemint; but this plant is seemingly very susceptible to frost injury, and a large proportion of the plants were stunted or killed outright.

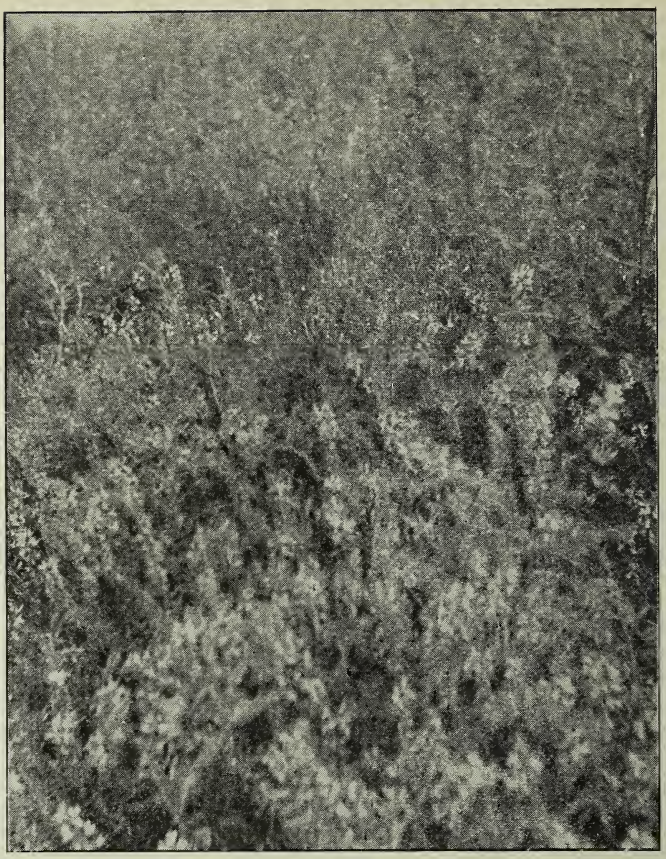
This year I have been taking a census of the wild flowers upon which the bees gather honey or pollen. First among the mountain bloom I place choke-cherries, then hawthorn [Cover picture.—Ed.] and thimbleberries.

A little later (in June) come the astragalus, penstemon, oreocarya virgata, the lupins, wild geranium, and numberless others that I will tell later.



We had fine prospects from the horsemint.

The astragalus, if I have been informed correctly of its name, is very attractive to the bees. I have been calling it wild alfalfa, for the reason that the odor of the blossom resembles alfalfa bloom. The astragalus has a pea-shaped blossom, not so compactly placed as alfalfa bloom, but of somewhat the same color, though not so blue as alfalfa. The plant grows about eight inches in height, and probably comes first, or ranks first, along with the penstemon as a favorite with the bees. The penstemon is a blue and light-blue blossom growing on a stem about eighteen inches high. It is a beautiful plant, and I have seen five bees at once on a single stalk of blossoms. Wild geraniums are very well liked by the bees, and would be more important if there were more of them.



The odor of the astragalus resembles that of alfalfa bloom.

The lupins comprise many varieties, and are very numerous this spring. The bees are not found so thick upon them; but from the abundance of the plants I would judge that the nectar secured is not insignificant in the aggregate.

While the wild bloom is not our source of surplus, it is so very important in the spring that we cannot ignore it. Western beemen will do well to become familiar with the mountain and plain wild flora of the western states.

Boulder, Cal.

SOME ODDITIES IN NATURAL LAWS

BY EDWIN G. BALDWIN, A. M.

A few days ago, even before we were up, our attention was drawn to the south window of the bedroom at our home, where, through the open casement, was wafted to us the sound of humming bees. I arose to see the cause. On examination it was at once clear to me that the bees were busy on a flowering shrub that fills, even to the eaves, a corner of the house formed by a bay window projecting toward the south.

The busy little workers were swarming over the plant, which is a jasmine (not a jessamine, for the two are distinct—*Jasminum officinale,* to be exact). It is half shrub, half climber, covered much of the late summer and fall with myriads of snow-white blossoms, each about half an inch in diameter at the outer edge of the petals. It is rather fragrant, though not nearly so fragrant as the star jessamine, with which it is sometimes confused.

Now, we knew that the petals of this

jasmine are too long and narrow for bees to reach the honey at the base of the corolla. Only butterflies, millers, hummingbirds, etc., can reach the base of such deep petals. Consequently we had not thought that honeybees would be attracted to the flowers at all. Imagine if you can, therefore, our surprise on seeing the bees hovering about and working on, not the blossoms, but on the bases or stubs (calyx or ovary of the blossom) left after the petals had fallen off! The white petals fall very early, leaving the vine full of the green bases or stubs,



The penstemon unilateralis. Three bees are working.

in the bottoms of which we could distinctly see a tiny drop of nectar shining. It was for this nectar that the bees were visiting the shrub. They were tarrying lovingly over and dipping into the bases, not merely running over them, as they sometimes do when in quest merely of pollen. They were getting honey too, for their distended bodies showed that their visits were not in vain.

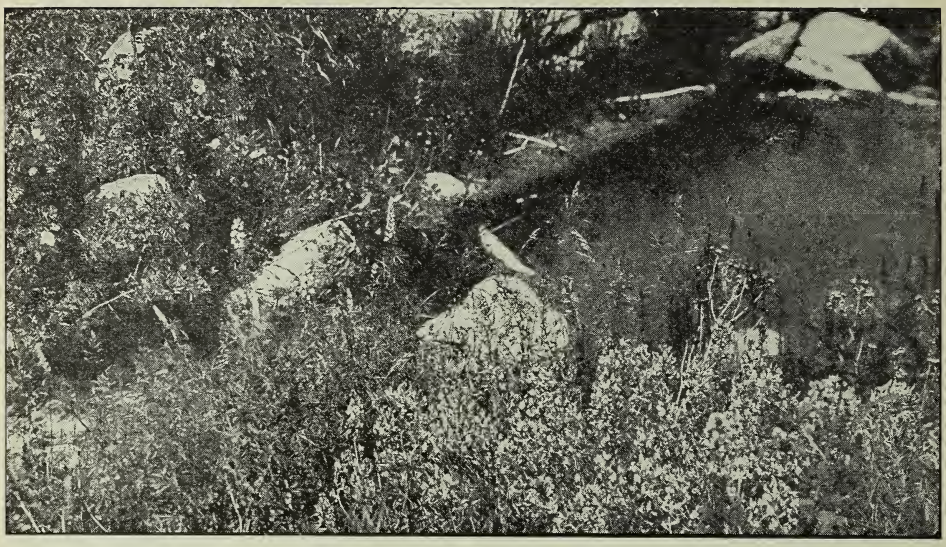
The interesting thing to me was this:



Wild geraniums are well liked by the bees.

Why does Nature allow an apparent miscarriage of her plans? for the petals in this jasmine form a star-shaped tube, which, when it falls, carries away with it also the stamens that adhere closely to the inside of the petals, and so carries the pollinating elements of the blossom. No good could, therefore, possibly result to the blossom from any visit of the bees after the petals were gone. The bees, we might almost say, were mere looters, taking what was left, but paying no toll of fertilization to the plant for the nectar obtained. The blossoms would have been fertilized equally well without the visitations of the bees. Why is it so? Is it some slip in nature, some abortive condition of a principle otherwise effective and efficient, world-wide in application?

Our wonder is increased when we reflect that this shrub is not the only instance of such abortion—if such it be—of a wide principle. The cotton and the partridge pea (sensitive pea, *Cassia chacmicrista*) of northern Florida and southern Georgia are both illustrations of a similar oddity. In these two plants it is not the blossoms that secrete the nectar, but small petiolar glands or leaves at the base of the blossoms. In a recent letter from Mr. John H. Lovell, of Waldoboro, Me., I was interested to note that he also finds some of the workings of nature's rules rather odd. He remarks of this trait in cotton and the par-



Lupins cover the brook bank. The blossoms are purplish red.

tridge pea. "The glands would appear likely to distract the attention of insects away from the flowers." That is, the presence of these nectar-secreting bracts, elsewhere than in the blossoms, would probably lessen the chances of insect-pollination rather than assist in the nuptials of these plants.

Who can fathom altogether the workings of even the simplest rule in nature? Who can explain to us the workings, the cause, and occasion for these apparent slips in the operations of the rule of insect-visitation and plant-fertilization? Are they like the appendix in the human system, or the presence of nipples on all male animals—mere souvenirs of a principle inoperative in special cases?

Truly Tennyson was as much naturalist as poet when he sang:

> Flower in the crannied wall,
> I pluck you out of the crannies;
> Hold you here, root and all, in my hand,
> Little flower, but if I could understand
> What you are, root and all, and all in all,
> I should know what God and man is.

Deland, Fla.

WHITEWOOD

BY W. C. MOLLET.

The whitewood is one of the most majestic and noble-appearing of the native American trees, often reaching a height of 150 and even 200 feet. In the South it is generally called "poplar," although not a true poplar, but related to the magnolia, its specific name being *Liriodendron tulipifera;* hence it is often also called tulip-tree. It is found in most of the South and East, but reaches its perfection in about the latitude of Kentucky and Virginia.

The wood is very useful in a great many ways, as it is easily worked and capable of receiving a fine polish. It is also very strong and durable. On this account the groves of whitewood have been cut down to a considerable extent, so that the trees are not as plentiful as they were some years ago.

It is also a very ornamental tree, as its manner of growth, its leaves, and flowers are very pretty, and it is one of the best and longest-lived shade-trees known.

It is not so hardy as the basswood in the North, and is also somewhat difficult to transplant, like all the magnolia family. The young trees will often bloom in ten years from the seed, although the blossoms are not very plentiful till it reaches the age of 15 or 20 years. It will succeed in any common soil, either moist or dry, and also on the hills as well as in the lower ground.

Whitewood is one of the best if not the very best honey-yielder with which I am

acquainted. The large flowers are of a cream color, with the base of the petals of an orange color, and they stand up straight like those of the tulip. They bloom in May or June according to the weather, sometimes very early, and at other times considerably later. When the blossoms come late, and the weather is fairly dry and warm, the honey-flow is very much heavier than when they bloom early. Under proper weather conditions no honey-plant will much exceed, even if it equals, the tulip tree. One good authority says that each flower will produce a teaspoonful of nectar, which I am pretty sure is not much of an overestimate.

On account of early blooming, and also the erect position of the flowers, the honey-flow is apt to be interrupted by cold spells or rain, which happens at least half the seasons. The tree continues to bloom nearly a month; and so when conditions are just right the yield is surprising, even where the trees are somewhat scarce. The bees often fill one or two supers from this source alone. Where the trees are plentiful there is not much danger of overstocking, as I am pretty sure that 200 hives of bees could not take care of all the honey within their range. Unfortunately, there are very few such locations now, and they are generally in some almost inaccessible place where it is almost impossible to get out or in.

The honey from whitewood is a bright amber color when new, but it becomes darker with age, and also very thick—sometimes almost like molasses. It is always considered to be of a fair quality, and most people who are acquainted with it prefer it to any other. I always can get a good price for it, generally 15 cts. for bulk comb honey. as this is the most common way of getting honey here, and so there is no need of fussing with getting the bees to work in sections. As long as I can sell bulk comb honey at practically my own price I am not very likely to produce honey in sections, as I can get fully a half more in the extracting-frames.

Stonecoal, W. Va.

VALUABLE WINTER BLOOM

BY P. C. CHADWICK.

The loquot is very limited in its distribution. It is found principally in our city gardens, and is grown for its fruit. Nevertheless it is of considerable importance as a pollen and honey plant for the month of December, when little else to encourage a bee is to be found.

The eucalyptus is of vast importance in many sections of our state. There are many species of this tree, one or more of which may be found in bloom at a time, during the entire year. The picture is that of *Eucalyptus globulus* which is, perhaps, the most important of any in the state, due to the fact that it has been planted generally to a greater extent. *Eucalyptus robusta* is the next in importance. Both of these bloom in December, January, and February, and their importance as a winter stimulative agent is well known to our native beekeepers. A flow sufficient to cause the building of new combs is quite common in some localities. The honey is not very desirable, either in color or flavor. There are said to be some thirty varieties of this tree in California.

No. 1 in the picture is a bud just in the act of blooming. The cap, which is almost exactly the shape of an acorn-cup, comes off and the petals spread, making the bloom complete. No. 2 is a seed-pod which has shed its petals. No. 3 is a bloom with half



The loquot encourages the bees when little else is present.

of the petals removed. No. 4 is a flower just coming to full bloom. No. 5 is a bloom at its fullest. The dark spot in No. 5 is where the bees enter for the nectar, the depth of which can be judged from No. 2. I have seen as many as three bees working on a single bloom at the same time. The fuzzy petals interfere with the progress of the bees to some extent, as they are obliged to work their way through to the honey-cup. They get well paid, as a rule, for their work.

Redlands, Cal.



The eucalyptus is of vast importance in California.

A NATIONAL COLLECTION OF HONEY-PLANTS

BY BURTON N. GATES, PH. D.

The Massachusetts Agricultural College, through the courtesy of the Botanical Department, Prof. A. V. Osmun in charge, has kindly consented to serve as a repository for specimens of honey and pollen plants from various parts of the country. The year 1915 seems to be devoted to the study of this subject, especially by the beekeeping press.

It is, moreover, fundamentally important, and is so recognized by the progressive beekeepers, for only by a thorough understanding of the flora can the most successful honey-cropping be accomplished. From time to time the flora of a given locality changes. New honey sources appear. Some seasons one honey-plant may predominate; in another season, other plants may predominate. Furthermore, a given plant may yield nectar, as, for instance, alfalfa, in one locality and not in another. The reasons for some of these phenomena are not fully understood.

It is with a view to determine the range of honey-plants and the locations of their highest efficiency that this institution proposes to serve the beekeepers. In so far as possible, too, the institution will assist beekeepers in the determination of unknown honey-plants. Furthermore, specimens received according to the directions given below will be filed in a permanent herbarium of nectar and pollen yielding flora. This collection should become invaluable as a source of reference during years to come.

Beekeepers are, therefore, invited to furnish for this collection, according to the following directions, specimens of their local sources of nectar and pollen.

Plants should be pressed and dried for shipping, as there is always danger that when shipped in fresh condition they will not reach their destination in good condition for preserving and identification.

DIRECTIONS.

1. Plants for pressing should be in full blossoms and should go into the press while fresh.

2. Newspapers may be used as driers, if care is taken to change them each day until the plants are perfectly dry, otherwise moldy specimens will be the result. Place the plant between several thicknesses of paper. If a plant is taller than the length of the paper it may be folded over to fit.

3. Use the margins of the newspapers on which to write necessary data, including name of plant—common or scientific—place and date of collection, name and address of collector, and a note of the value of the plant in your locality for honey or pollen.

(Extended remarks should be sent in a separate letter; but be sure to refer to your specimens sent under separate cover.) It is desirable that several specimens of each kind of plant be prepared.

4. Press papers may be laid on the floor with a board of the proper size on top. On the board place a weight (or stones) of about thirty-five pounds. Too much weight is not desirable.

5. For shipping, place the folder containing plant and data between pieces of binder's board or heavy cardboard; wrap and tie securely, and label "dried plants," with your name and address as sender.

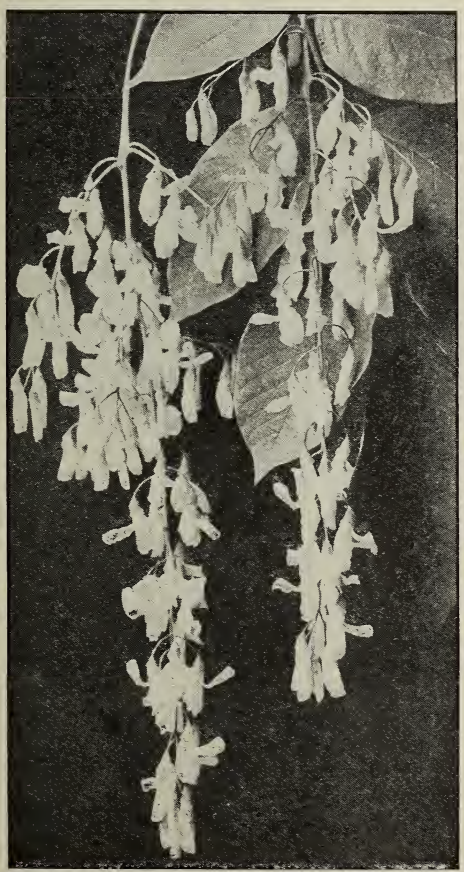
6. Address the package to:

Prof. A. Vincent Osmun,
Clark Hall,
Massachusetts Agricultural College,
Amherst, Mass.

THREE SOUTH-CENTRAL HONEY-TREES

BY J. M. BUCHANAN.

Virgillia lutea, yellow-wood—a tree attaining a height of 75 feet, and a diameter of more than 2 feet, occurring on the highlands of the south-central states, and often planted for ornament. Flowers are snow-white, in large panicles 12 inches long; blooms in April and May. The honey has a strong, distinctive flavor, and, when mixed with locust, which it usually is, it forms a delightful blend.



Virgillia lutea, Yellow-wood. Photo by J. M. Buchanan, Franklin, Tenn.



Robinia pseudacacia, Locust. Photo by J. M. Buchanan.

Liriodendron tulipifera, yellow poplar. Found throughout the south-central states. This is one of our most valuable timber trees, sometimes standing 150 feet high, and 10 feet in diameter. Like the linden, it is becoming scarce in many sections. It is a heavy yielder of nectar, producing a fine-flavored, light-amber honey. The blossoms open in May; are large, tulip-shaped, yellow, with irregular red spots on the inner faces of the petals.

Robinia pseudacacia, black or yellow

locust. A rugged, homely tree, but a wonderful honey-plant. The creamy-white blossoms open in April, and fill the air with their sweet perfume, inviting the bees to come and feast. The honey is water-white, heavy in body, mild-flavored, slow to granulate. The yield is often heavy, depending somewhat on weather conditions. I have known a colony on the scales to store 15 pounds in a day from locust alone. The locust occurs in the central and southern states; and the wood, on account of its lasting quality, is valuable for posts. It is also a good soil-renovator, as it is a member of the legume family.



Liriodendron tulipifera, Poplar. Photo by J. M. Buchanan.

Franklin, Tenn.

THE EUCALYPTUS OF CALIFORNIA

BY LESLIE BURR.

The tourist on his arrival in California probably obtains more misinformation on the subject of eucalyptus than on any other. The object of this article is to set forth the general characteristics and habits of the eucalyptus.

The tree is a hard-wood evergreen. It belongs to the order *Myrtaceae,* and is a native of Australia. The tree was discovered in 1788 and was introduced into California in 1856, the first tree being planted near Santa Barbara. The name "eucalyptus" was suggested by the lid or cap-like covering that covers the immature blossom, the word being from the Greek, and meaning "well hidden." There are about 150 species, more or less, of the eucalyptus, the number not being definitely settled.

The tree that predominates in California is the *Eucalyptus globulus,* commonly called "blue gum." In years past a possible ninety per cent of all gum-trees planted were *Eucalyptus globulus.* This tree has the distinction of being the fastest-growing tree in the world. This does not mean that blue gum will always grow more rapidly than any other gum-trees, for in many localities other species have outgrown it in particular instances; but, taken as a whole, it is the fastest-growing tree. In 25 years it attains the size of that of an oak-tree whose rings show it to be 200 or 300 years of age. The wood is the equal of oak, and can probably be used for a greater variety of purposes. It has another added value in that, when it is cut down, the tree sprouts freely, sending shoots 75 to 100 feet high in from six to eight years.

All the species of eucalyptus are propagated from the seed only. The seeds are very small, the average size being about .04 of an inch. The number of seed produced by a tree is enormous; but, however, a very small percentage of the seeds are fertile, and for this reason there is a widespread opinion that seeds from trees growing in California will not germinate.

The blue gum and a number of other species are bark-shedders—that is, they continually shed their bark. The trees are also classed somewhat by reason of the nature of the bark, as iron-bark gums, stringy-bark gums, and white gums.

The localities where eucalyptus will grow here in the United States are limited. They do best where the summer temperature ranges from 80 to 100 degrees; and where in winter the temperature seldom goes be-

low freezing. This restricts the eucalypti to the warmer valleys along the Mexican border, and to California. Practically all of the varieties seem to do best in a semi-arid country. They grow without irrigation in California where there is but a few inches of rainfall. Some of the species will stand more frost than others, the amount of frost a tree will stand depending somewhat on the condition of the tree. If the weather has been cool for some time they will stand temperatures of 25 degrees to 20 degrees Fahr. without injury. Florida is a poor place for the eucalyptus by reason of the sudden changes in the temperature. In Government Bulletin 35, Bureau of Forestry,



a, gate gum; b, red gum; c, blue gum; d, lemon gum; e, lemon gum.

Prof. McClatchie quotes as follows from Col. G. H. Morton, of Eustis, Florida: "All eucalypti do well, but are killed to the ground when severe blizzards come and mercury falls below 20 degrees Fahr. The trouble with the climate is, we have warm weather nearly all the time in winter, with an occasional cold wave."

There are very few of the species that have common names, and quite often the same name is applied to several species. According to Prof. McClatchie, twelve different species of the eucalyptus are, by the general public, called blue gum; seven are called flooded gum; eight are called iron-bark; nine are called red gum; eleven different species are known as stringy-bark, and the name "white gum" is applied to thirteen different species. By reason of this dearth of common names the botanical names have to be used, and here it might be well to say that the botanical names refer to some prominent feature of the tree. For example, *Eucalyptus globulus* is so called from the globular seed-case. *Eucalyptus longifolia* is so called by reason of the long leaves. *Eucalypius mellidora* means "honey-scented," from the fragrance of the blossoms. *Eucalyptus robusta* is so called by reason of the robust appearance of the tree. *Eucalyptus siderophlia* means "iron-bark," and is so called by reason of the nature of the bark. *Eucalyptus diversicolor* is named from the varied color of the foliage, and the *Eucalyptus cornuta* means "horned" because of the horn-like cups over the immature blossoms.

There is considerable difficulty in distinguishing the different species of eucalyptus. In fact, it is admitted by the best authorities that it is practically impossible to distinguish them in many cases until the trees bloom and the seed-pods mature.

To obtain an idea of the vastness of the study of eucalyptus we have but to consider the fact that Baron von Muller spent considerable of his time for a period of fifty years in the study of eucalypti. He described about 100 different species, and recognized 30 more, but died before he completed his work.

The foliage of the eucalyptus varies considerably. In some the leaves are bluish, others grayish-green, and still others very dark. Some of the leaves hang edgewise to the sky, and some flat. In some species the leaves on the young shoots are round or flat and opposite; but after the trees obtain a few years of age the leaves are never opposite. The prevailing shape of the leaves is lance-shaped and somewhat curved. The leaves of the different species vary considerably in length, being from three to fourteen inches long.

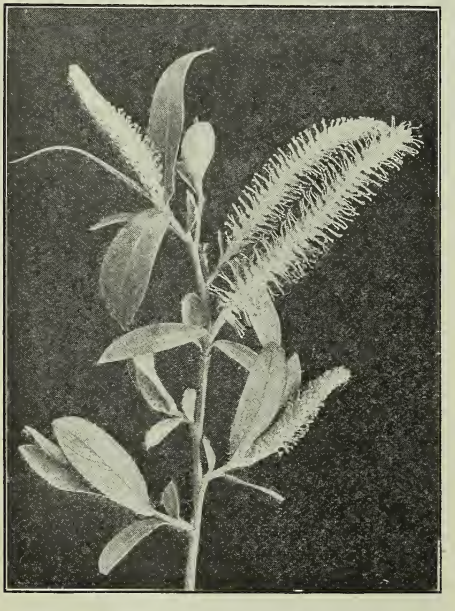
The blossoms of the eucalyptus are mostly white or greenish-white, there being exceptions however. Some trees have a brilliant red or pink blosson, the red iron-bark being one of the trees in the latter class. Eucalyptus can be found in blossom at all sea-



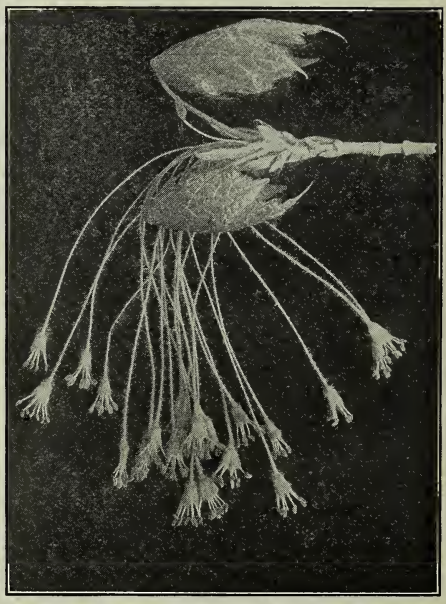
Glaucous or pussy willow. Staminate and pistillate and catkins. *Salix discolor* Muhl. Photographed by John H. Lovell, Waldoboro, Me.



River-bank willow, *S. longifolia* Muhl. Staminate and pistillate catkins. Very common, following the pussy willow; valuable for both pollen and nectar. Photographed by John H. Lovell.



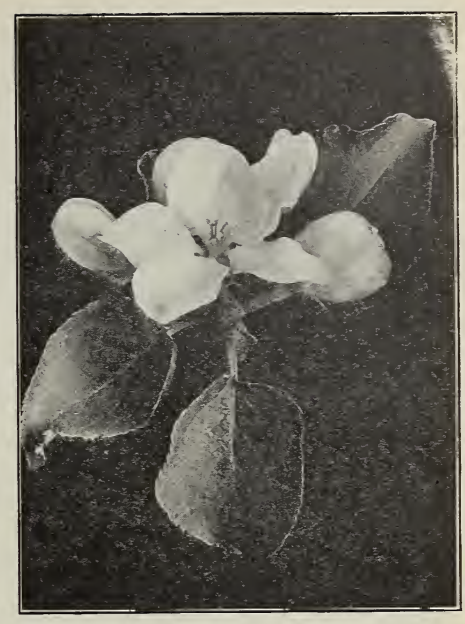
White willow, *Salix alba* L. *Staminate* catkins. Common trees visited by bees in great numbers. Photographed by John H. Lovell.



Rock or sugar maple, *Acer saccharum* Marsh. Photographed by John H. Lovell.



Dandelion. *Taraxicum officinale* Weber. Photographed by John H. Lovell.



Apple, variety Hurlbut, *Pyrus malus* L. Photographed by John H. Lovell.



Red clover, *Trifolium pratense* L. Common, but not a reliable honey-plant. Corolla tubes too deep for most honeybees. Photogaphed by John H. Lovell.



Tulip-tree or whitewood. *Liriodendron tulipifera.* Leaves are dark green and glossy, flowers greenish yellow, orange within, solitary and erect. Photographed by C. V. Rice, Lawrence, Mich.



Orange blossoms and leaves. Photographed by Flora McIntyre, Ventura, Cal.

sons of the year, while others have several periods of bloom. The blossoms, as a rule, grow in clusters or umbels, very seldom being single. The blossom consists of stamens, these stamens in the different species varying from ½ to 1½ in. in length. There is always the cap over the immature blossoms, this cap being part of the calyx, and always coming off in one piece resembling a lid or cup.

As a honey-producer, a number of the species are profuse yielders. In examining the various authorities on the subject there seems to be no species but that some one claims it yields honey. So it seems a safe proposition to state that all of the different species of eucalyptus at some time or other, in some localities, yield honey. There is considerable variation in the quality of the honey. Some is strong and rank, and of inferior quality; some of the nectar has a distinctive odor or aroma of the eucalyptus-tree, and is not disagreeable. In fact, some people after having eaten eucalyptus honey prefer it to good white honey from other sources.

The practical value of the eucalyptus to the beekeeper is that it furnishes pasturage for the bees when there is nothing else, the bees here on the coast this past winter having stored surplus from eucalyptus during December, January, and February. The value of the different species as honey-producers is as yet far from being exactly determined, even though the tree has been recognized of value to beekeepers for a number of years. Prof. Kinney, in his work which was published some twenty years ago, states that his attention was first called to the value of the eucalyptus to beemen by Prof. A. J. Cook, Claremont. It is safe to say, however, that within the next ten years eucalyptus culture will make more progress than has been recorded in the past sixty years. It is the only tree that can be grown and show a profit per acre with other ranch crops. Each year, for the past few years, large tracts of land have been planted to eucalyptus; and in a few years, perhaps, eucalyptus honey will be filling just such a place in the honey market of the West as buckwheat honey fills in the East.

San Diego, Cal.

SOME NEW ZEALAND HONEY-PLANTS

BY W. B. BRAY.

1. *Fuschia.*—This is an ornamental garden variety. The bees work the red flowers vigorously. In New Zealand we have a native variety similar to this, only the flower is green. It is a great honey and pollen yielder, and flowers for over three months, lasting well into clover bloom. It is a standby for spring feed, and is not affected by rain, the flowers hanging downward. The pollen is blue on all varieties.



Rain cannot get to the pollen on the fuschia.



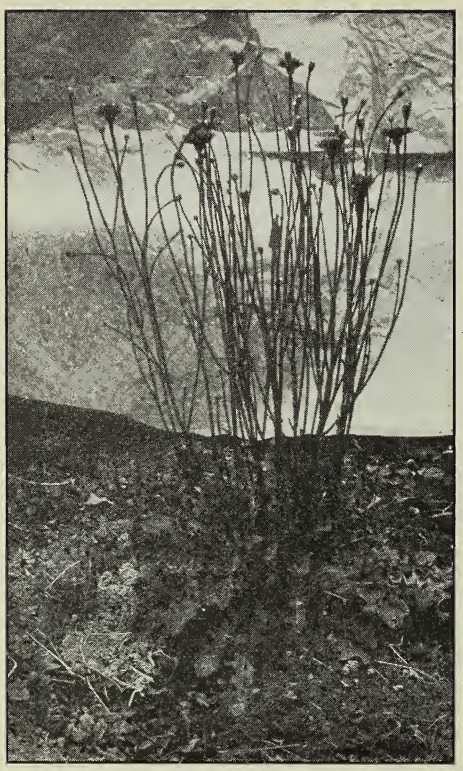
Nectar can be shaken out of redhot poker in handfuls.



Bees always work the passion flower.



The Scotch thistle grows everywhere.



In New Zealand the catsear is sometimes called the dandelion.

2. *Passion Flower.*—This is a vine which in warmer climes produces the passion fruit. The bees always work it. It has a very long blooming period.

3. *Redhot Poker.*—A garden plant here; but in its native habitat the bees should do well on it. The nectar can be shaken out in handfuls. The bees work on it from early morn till late in the afternoon. It blooms in the early autumn here.

4. *Catsear.*—This is commonly called capeweed here, and even dandelion. Is it the same as is called dandelion in the states? Dandelion has a similar flower, but only one flower to a stalk, which is hollow. The leaf is smooth. Catsear has a rough leaf, and the flowers come on branching stems which are solid. Dandelion blooms in the spring, but catsear starts soon after clover and continues when clover is finished. The flowers close up after midday. It is a strong grower, and often the pastures are a sheet of yellow in the morning. It is a useful honey-plant. The honey is of a rich golden color, and the flavor mild and good.

5. The common Scotch thistle is a weed which grows everywhere. It begins flowering as clover is going off, and provides a quantity of water-white honey. The bees work very hard on it all day, and it is no uncommon sight to see several bees at once on a flower.

Wainin, N. Z.

THE GLORIOUS GUM-TREE; A WONDERFUL HONEY-YIELDING BOTANICAL ORDER

BY T. RAYMENT

An American architect came to Australia to design a capital worthy of the commonwealth. He, like all visitors to the Australian shores, was so deeply impressed with the unique beauty of the trees peculiar to the island continent that he enthusiastically described them as "glorious gum-trees." This note awakened Australians to a better appreciation of the indigenous flora. "The glorious gum-tree" is ubiquitous. Snow-gums (*E. alpina*), twisted and bent, battle with the elements on the snow-clad mountain peaks. The scorching winds of the arid interior do not debar the coolibah (*E. microtheca*) from flourishing. Color harmonies in deep cool forest gullies are provided by the manna-gums (*E. viminalis*) and cider-gums (*E. gunnii*). Other species clothe the long coast line, notably the swamp mahogany (*E. robusta*). Surely a wonderful distribution!

But the term gum-tree is a misnomer. The various trees belong to the species *Eucalyptus* of the order *Myrtacea*. E. R. Root, editor of GLEANINGS, once said that it was almost impossible to specify botanically the goldenrods (*Solidago*) of America, and this applies to the *Eucalypts*. They furnish an interminable study in plant gradation, one species merging into another with baffling complexity; *but they all yield honey.* The bark permits a popular classification because it is most apparent; but no system is entirely satisfactory. Here, then, are the groups differentiated by the bark:

Gum-trees.—Bark thick, smooth, and soft. Typical specimens, blue gum (*E. globulus*), and forest red-gum (*E. terticornis*).

Box-trees (1).—Bark solid, rough, and short-fibered; confined to the bole with upper branches bare. Typical specimens, yel-

low-box (*E. melli-dora*), and gray-box (*E. hemiphloia*).

Box-trees (2).— Short-fibered and rough, persisting to the topmost. Typical specimens, apple-box (*E. stuartiana*), and red box (*E. polyan-themos.*)

Stringy - bark.— Bark thick, soft, and long-fibered, not unlike cocoanut fiber, completely covering trunk and branches. Typical specimens, messmate (*E. oblique*) and Gippsland stringy-bark (*E. eugenioides*).

Iron-bark.— Bark hard, brittle, dark, with deep furrows. Typical specimens, red iron-bark (*E. sideroxylon.*)

There are hundreds of species, some with a habitat extending over the five states, so that every week produces a honey-crop in some portion of Australia. The color of the nectar varies from water-white (*e. g.,* box) to a dark vandyke brown almost as deep as the color of buckwheat honey (*e. g.,* stringy-bark). Each little district has its special favorite species for pride of place as a honey-producer. You cannot imagine the honey resources of the province of Gippsland in Victoria. From where this is written the eye may travel over the tumbling contours of sixty miles of mountains clothed with unbroken virgin forest containing many species of eucalyptus. In this mighty sylvan expanse, pulsating with the majesty of God, and permeated with the wonderful odor of growing trees, there are but two bee farmers. Adventurers? Yes, and one of whom is your humble servant.



The gum-tree grows everywhere throughout Australia.

Briagolong, Victoria, Aust.

[This is the first of a series of three articles by Mr. Rayment on certain important pollen and nectar yielding plants of Australia. The second article will appear in the next number.—ED.]

THE BITTER HONEY OF THE SNEEZEWEED

BY H. A. MOODY

Last September I wrote GLEANINGS that some of my supers were full of beautiful bright-yellow honey, too bitter for eating. Inspired by that fraternal spirit characteristic of all true bee-lovers, Mr. Herman Meuly of Corpus Christi, Texas, wrote me that he once had some bitter honey, gathered from a tree called "la Retama," which he re-

placed upon the hives, and in 30 days the bitterness was all gone. I am much obliged to him for the suggestion; but my bitter honey came from a different source, *Helenium tenuifolium,* the sneezeweed or bitterweed of the South, a poisonous perennial which can be killed only by mowing it for two years so often that it cannot go to seed. It seldom kills cattle, but it makes the milk too bitter for use. It is a nuisance, for even when there is other grazing some cattle will eat it. I might say that, though it resembles dog-fennel (*Anthemis cotula*), it is of a different family.

Well, I put about a dozen bitter supers on the hives, next to the brood-chamber, though some warned me it would kill the bees. I have just extracted those supers. All the yellow honey was gone, and they were filled with young bees and rich amber honey. Two supers were rejected, as they still had a slight bitter flavor. So there, you see, are two questions answered. It will not kill bees, for I lost but one colony in the eight months of my absence; and you can never be sure of getting rid of the bitter taste. I have never known it to be gathered when there was any other nectar, and if replaced on the hives all other honey should be taken away, so that they will be obliged to use it.

Florence, Ala.

THE COMMON LOCUST

BY J. H. BOWMAN

The locust yields much honey usually at a time when it is greatly needed by the bees. Ordinarily it blooms about the middle of April in Kentucky, although it sometimes blossoms late in March. This makes it of much value in building up colonies in the spring. Sometimes it yields a nice surplus.

The honey made from the locust is water-white and of very fine flavor. Owing to the value of locust timber for fencing purposes it is being cut down very rapidly, and is decreasing in value as a honey-yielder. On the other hand the locust grows rapidly, and yields some nectar while it is very young—a partial compensation.

Mortonsville, Ky.



The fragrance and nectar of locust blossoms attract large numbers of bees.



An aged locust-tree in heavy bloom.



Bees on plum blossoms promise perfect fruit. Photographed by A. G. Lucier, Powell, Wyo.



Gathering nectar from plum blossoms. The bee can be plainly seen near the center of the picture: Photographed by A. G. Lucier, Powell, Wyo.

THE NEED OF EXACTNESS IN THE DISCUSSION OF HONEY-PLANTS

BY C. F. BENDER

All beekeepers seem to agree that buckwheat produces dark honey; that basswood and the clovers produce light honey. Outside of this simple creed it seems very easy to get up a discussion as to the color and quality of honey produced by any particular plant.

It is not always easy to say *where* the bees are getting their honey. I have had honey stored in supers when I could not even guess what plant had produced it, and that in a level country where I was familiar with every acre of ground, and rather well posted as to the honey-producing flowers and their season of bloom. But that is not the rule with me. Usually I know where the honey is coming from, if there is enough to make a show in supers, and sometimes I can be sure that practically all is from one source.

We often disagree on such matters because we are talking about different things. A brother in eastern Canada and one in Illinois have a talk about aster honey, and one says it is of light color and good flavor, and the other says it is dark and strong. Neither describes the plant, tells the Latin name, nor even the color of the flower. Neither stops to consider that there are more than forty species of the genus *Aster* in the United States, and that of aster-like flowers, easily mistaken for them, there are many hundreds. It is easier for me to believe that the honey from related plants may differ in quality than to believe that the quality varies in the same plant in different localities.

Before I had ever made any careful study of plants I was skeptical about honey ever being produced from goldenrod, as I never could find a bee on it; but at Medina, Ohio, I found two kinds of goldenrod growing side by side, blooming at the same time—one a honey-producer and the other not, and both were different from our Illinois species. We have two species of Spanish needle here—one with gorgeous yellow flowers that the bees never visit; the other a modest flower that sometimes gives some surplus. In southern Kentucky I found bees on another plant of the same genus, quite dif-

ferent in appearance. People living there called it Spanish needle, and seemed surprised to hear that Spanish-needle honey in Illinois was produced from a different plant.

In speaking of heartsease I think beemen usually mean a plant of the knotweed or smartweed family. Yet Webster's dictionary says it means a violet or pansy. Even Dr. Miller, that careful teacher of bee lore, speaks of heartsease without other definition (p. 123, Fifty Years Among the Bees); but he gives a cut of the plant in another place which shows it to be a knotweed (*Polygonum*). It seems to be different from the honey-yielding species here, which is *P. Pennsylvanica*. We have five species of polygonum growing in our township, four of them quite common. Only one of them is ever visited by bees. It begins to bloom a little in July, but does not yield honey until cooler nights come on, the flow lasting from August 20 to October. I often get a large crop from it when nothing else is yielding. The color is very light and the flavor delicious. Sometimes it is mixed with honey from our Spanish needle (*Bidens frondosa*) which injures both color and flavor.

Boneset honey is generally described as dark and rank, but our variety (*Eupatorium serotinum*) seems to produce a very good quality of honey. Wood's Botany gives the name "boneset" to *E. perfoliatum*.

There are even two kinds of dandelion to be found. The species at Medina is evidently a cultivated plant run wild, and is quite different from the wild dandelion of my locality.

I could give many other instances of the same name being applied to widely different plants in different places; but it would only be adding evidence to prove what is already proven—that in speaking of honey-plants we ought to give the Latin name if possible. A vast majority of plants have no English name; and if there is one it is often applied to other plants.

It is true that the busy beeman has little time for the study of botany; but it is easy to identify the common flowers with the aid of a few books. In cases of doubt the state experiment stations or the Department of Agriculture at Washington will help us out, if the plant is sent with flowers, leaves, and seed-vessels.

Newman, Ill.

ANOTHER FLORIDA BEE PASTURE

BY F. M. BALDWIN

Much of the testimony taken in courts is worthless because the witness has not learned how to see things. The man with real ability to observe is rare. Last fall I watched for the coming of the first bloom on the goldenrod and rejoiced when by the roadside, as I was at work surveying, I caught the first glimpse of a bee on it. To my rodman, who is an intelligent young man, I said, "See there!" as I pointed at the bee. He looked all around and said, "See where?" I was almost touching the bee, and I kept on saying, "See there!" It would have been easy to say, "Don't you see that bee?" but I wanted to test his powers of observation, and so I kept on saying, "See there!" As he was not thinking bees I was at last forced to say, "See that bee on that flower."

Mr. C. H. Clute has thought bees ever since, as a half-grown boy, he earned his first quarter by a day's work watching the issuing of swarms in Wisconsin. The bee-keeper was busy with his farming, and he hired the boy to report when a swarm had issued. He has acquired the faculty of observing all things that concern these wonderful insects.

Recently he was in the country along the St. John's River, Florida. He reports a flora that actually seems too good to exist.

Hearing of some bees for sale near Sanford he went to see and buy, if he found matters favorable. Of course, as a careful man he looked closely into the flora of the region before he bought. Having satisfied himself on this point he bought three yards with nearly 200 colonies. Sanford is at the head of steamer navigation on the far-famed St. John's. He made the trip by boat down it to Jacksonville, closely observing the vegetation on its banks. He brings back an interesting list of what he found growing there. Below is a copy. After he gave it to me I went over it with Mr. J. J. Wilder, of Cordele, Ga. Wilder has the "Florida habit," and winters with us at Bradentown. He agreed with me that the list was worth publication, and that we could be sure it was carefully and correctly compiled. According to our ideas there are at least thirteen first-class nectar-secreting plants in the list. These are put first in the list and marked with a star. When I told Mr. Clute about what we had



GUAMA AND GUAVA AS HONEY-PLANTS.

The illustration shows a stalk of the guama in full bloom. This tree has had three periods of bloom this year. However, it is not the heaviest-yielding tree, for we have the guava, which is more abundant in nectar, and whose flora lasts several months. Moreover, the honey is equal to that from the guama or even better. Both of these trees are used for shade in coffee plantations.

Yauco, Porto Rico. S. COLOM.

picked out as first class in this list he thought we had skipped several that belonged in the first rank. He would include maple, yellow jessamine, sweet fennel, touch-me-not, all-root, buck-apple, live-oak, Mexican clover, sumac, and titi. If you have no personal knowledge of Florida, you may think he has included several very poor honey-plants. But remember that what does well with you may be an absolute failure here and *vice versa*. Back in Indiana it was too cool for maple to give any nectar when it bloomed. Down here it starts the activity in the hive and lasts more than a week in the spring. It is not strange that Mr. Clute would put it in the first rank. But I hardly felt that it was a "ringer," and concluded that I would stay with the classification that Mr. Wilder and I had made. Thirteen may in some cases be an unlucky number; but in this one it means success to the beekeeper who is fortunate enough to be located in such a neighborhood. It gives a succession of bloom the year round. What more can one ask, especially when it includes such fine producers as orange, saw palmetto, Spanish needle, tupelo, and the myrtles?

Mr. Clute put up his surplus in Mason quart jars as chunk honey, and brought home with him some of it as samples. The one that most interested me, because it was new to me, its color so peculiar, and its flavor so fine, was mint honey. From one of the yards southeast of Sanford he took 1800 pounds of this kind. Dividing 1800 by 30, the number of colonies in the yard, gives 60 as the average. For a yard where there had been lack of room owing to the owner's being engaged in what he thought more profitable business, sixty pounds is a good average. But friend Clute expects to more than double it this season, the prospects for a heavy flow being the best ever known at this time.

He has picked a location half a mile from the present one, where this yard should gather from smartweed as well as from mint. This last comes in and goes out before the other begins, and this other yields for months, beginning in July and staying with us until late in November. There are acres and acres of both mint and smartweed. Before smartweed fails, wild sun-

flower, goldenrod, and myrtle come in, and there is the greatest profusion of them. Does not this look like a beekeepers' paradise?

There are fifty plants in this list; but they ought to be separated into the different varieties, in a number of cases, to give one a correct idea of what a multitude of sources of nectar this favored region has. Surplus was already being gathered the first of February, 1915. Why, drones flying on the St. John's, and we who are miles south of it had no sign yet of drones in our hives! The orange and the grapefruit were starting to fill the air with their delicious fragrance. I saw the first bloom Jan. 31. Our bees must hurry if they get in good condition for that bloom. Saw palmetto usually comes in about April 1. I was told that already there were blossoms on some of those plants.

HONEY-PLANTS FOUND ALONG THE ST. JOHN'S RIVER, FLORIDA.

*Orange,
*Grapefruit,
*Gallberry,
*Saw palmetto,
*Smartweed,
*Mint,
*Partridge pea,
*Goldenrod, 4 varieties,
*Wild sunflower,
*Spanish needle (blooms almost all the year);
*Tupelo,
*Swamp laurel,
*Myrtle (several kinds, two of which yield heavily in spring and fall.
Maple,
Willow,
Rattan,
Yellow jessamine,
Cherry,
Aster, several kinds,
Swamp dogwood,
Locust,
Yellow poplar,
Red shank,
Sweet fennel,
Basswood,
Pennyroyal,
Touch-me-not,
All-root,
Huckleberry,
Buck-apple,
Yellow daisy,
Persimmon,
Prickly ash,
Live oak,
Water oak,
Bay,
Woodbine,
Chinkapin,
Hickory,
Black haw,
Mexican clover,
Mexican pinkvine,
Watermelon,
Cucumber,
Water hyacinth,
Sheep burr,
Sumac,
Titi,
Grape, wild (good honey-plant in Florida).

Bradentown, Fla.

IMPROVING ON NATURE

BY G. DE C. CURTIS

I hived a swarm that had a virgin queen April 16; and when I examined them about a week later the queen appeared to have been fertilized, but was not laying. I noticed at the tip of her abdomen a small grayish-white deposit that looked like a bit of dried mucilage. Several days later (April 19) I looked in again, and there was still no brood. While I held the frame in my hand the queen went through the motions of trying to lay an egg. The bees stood around her expectantly; and when she moved on without depositing anything they followed her in a disappointed sort of way.

I decided on an operation. Holding her by the wings I pulled the adhering matter away with a pair of tweezers. It was stuck so firmly that her abdomen stretched out with the strain until I feared something would break; but when I looked into the hive again next day she seemed to be in good condition, and had laid a nice patch of eggs. Could it have been that the organ of the drone had not been removed, for some reason, until it had become so dried up that removal was impossible?

On the same day I saw a virgin hatch tail foremost from a cell in a queen-cell protector. I had examined the cell two days before, fearing that it had become chilled. I had made a tiny hole in the end of it, and, looking in, I saw the queen's black eyes shining, and a slight movement, so I put it back in the hive. Next day the bees had completely sealed over the hole I had made. When I looked, on the day after that, the virgin was very much alive and trying to get out, but the hole seemed to be too small —perhaps the bees had sealed up the end too effectively. A number of workers seemed to be very much interested in the case—perhaps they were feeding her.

By the time I had carefully brushed them away the virgin had turned around in her cell, so that the tip of her abdomen projected from the hole. She might have been eating the royal jelly at the base of the cell. I took the cell out of the protector, and then with my queen-clipping scissors I carefully enlarged the hole in the cell; and when I had done so she backed out. The activity she showed as soon as released was like that of a virgin which has been held back in her cell by the bees beyond her hatching-time when bad weather or some other cause had prevented her swarming.

Foster, Cal.

[It may be that the queen did turn around while in the cell; but is it not more likely that she had hatched and then had gone into the cell again, head first, for the royal jelly and the "hinged door" (the cap of the cell) had closed after her? A number of such instances have been reported. The bees, seemingly unaware of the true state of affairs, wax the cell shut again, thereby making a prisoner of the queen.

Is it possible for a virgin queen to turn around, end for end, while in the cell?—Ed.]

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

Don't think that you are the only one that has the blues on a cold wet day. Every bee in the yard feels the same way.

A Sting-proof Dress.

I must tell the women who have "bees in their bonnets," and yet are actually as afraid of a bee as they are of a mouse, about a suit so bee-proof in its construction that they may associate with bees to their hearts' content without a sting.

Make a garment of gingham or any light-weight material, just like a child's sleeping-garment (except a size too large). Don't shape the neck or shoulders, but extend on straight like a sack, several inches above the head; hem the top and run a good elastic in the hem. Cut out a place for the face and replace with fly-screen wire. Hem sleeves and bottom of legs, and run elastic in the hems so it will fit tight around the wrists and ankles. Take fencing wire; make hoops, and sew a few inside the garment, one at the neck to keep the garment away from the body so the bees cannot sting through.

You will not have to wear many clothes under this garment, as working with bees is such hot work. You get into the garment at the top, then put on a hat, and let the elastic in the top of the garment fit tight around the crown of the hat. Then there is not a crack or crevice where a bee can get in.

Of course, after you become acquainted with bees you will find the work very fascinating, and will discard all extra garments or wraps of any kind except occasionally a veil. But the garment described is fine for getting acquainted with bees.

CILA SEVER.

Pollen Dust on the Backs of Bees—How Did It Get There?

I have occasionally seen a honeybee with pollen on the back of the thorax. Recently, in examining a small colony, I was surprised to find all the pollen brought in exactly in that manner. I watched the bees coming in for a long time, and saw only one bee that had even a suspicion of pollen on the legs. The bees that were bringing in pollen had masses on their backs, some of them quite large. I am wondering if you had a similar report, and I also am wondering how the bees pack the pollen on the back. I chloroformed a few, and am sending them to you in a box by to-day's mail. In chloroforming them I noticed it took out the color of the pollen, which was a pronounced yellow, and also dissolved some of it, or at least flattened the masses on the backs.

I fancy that somebody may pop up and inform me that bees, in squeezing into the flowers, rub off a little on their backs. I have occasionally seen that powdery form, but these were evidently deliberately made pollen masses equivalent to those usually carried on the legs. Can anybody explain how the bees pack pollen in that position?

EDWARD F. BIGELOW.

Arcadia, South Beach, Conn.

[It is quite a common occurrence to find pollen on the backs of honeybees at certain seasons of the year. It is evident that the bees do not take the time to brush it off while in the field, but allow it to remain there, and then the dust is taken off after they get back to the hive. Sometimes these little patches of pollen are very conspicuous on the backs of the bees.

Your last paragraph explains how the pollen in most cases gets there. If you examine some of the flowers you will find that the pollen masses are arranged in just such a way that it will daub up the backs of the bees. The bees are evidently after the honey, and, pushing into the flowers, they are compelled to brush against the pollen masses.

Referring to the samples of bees you have sent it looks as if they packed the pollen on their own backs.—ED]

Do Drone Larvae in Queen-cells Ever Mature?

A few days ago I examined a hive and found the usual signs of an infertile queen. On one frame the bees had built seven queen-cells on drone comb, each one of which contained an unsealed drone larva. As far as my observation goes, drone larvæ in queen-cells die soon after being capped over. I shall be glad if you can tell me if there is any recorded instance of drone larvæ under such conditions having reached maturity. I am told by an old hand at the craft that he actually witnessed this on one occasion, the result being the most extraordinary-looking bees he had ever seen. Unfortunately he did not preserve them.

J. B. SHEPPARD.
Apiary Inspector.

Nelson, B. C., June 26.

[There have been instances recorded where drone larvæ in a queen-cell reached maturity; but usually the highly concentrated food seems to be too much for the poor beast, and he dies. In this connection, brood from a laying worker or drone-laying queen in ordinary worker cells will often be neglected. It will die about the time it caps over, smells horribly, and gives one the impression that it is either European or American foul brood. Such brood does not *always* die, but it frequently does. The cause

of death is neglect or starvation. It is a case of what we call "neglected brood." The bees evidently know that this brood is good for nothing, become discouraged, lie down on the job with the result that there may be a stinking mess in a short time.—Ed].

Importance of Italian Blood in the Cure of European Foul Brood.

Mr Root:—Replying to yours in reference to editorial on page 480, I may say that the instructions for the cure of European foul brood given in the Ontario Bulletin, 213, on "Bee Diseases," may be outlined as follows:

First.—The same treatment already described for American foul brood is effectual if applied to the whole apiary at once, but the cure is permanent only when pure-bred Italian queens are introduced to all black or hybrid stock.

Second:—If the colony is strong, and only then, another treatment may be employed. Remove the queen, then in ten days introduce a vigorous young Italian queen, and by the time she gets well established the disease will be cleaned up. If the disease returns in an Italian colony to such an extent that, say, half the brood is dead, removing the queen for five days before introducing a new one works well, as it gives the bees a chance to clean up the combs before the new queen has a chance to lay. If more than half the brood is dead, the colony should be treated by the McEvoy method.

The experience of some of our most careful men is that, if a beekeeper has his apiary Italianized before the disease reaches him, and if he is looking into his brood-chambers every week during the season, he need never destroy a single comb. The great trouble is that the vast majority of beekeepers, even the more extensive ones, are like the writer of the letter from which I am taking the following extract:

"*Dear Sir*:—I am really afraid that my bees are affected with that dread disease European foul brood. The first I noticed was about ten days ago. In looking them over I noticed two or three colonies that did not look right. Colonies that were healthy then are affected now. If you could send me some good man who could tell me if I really had the disease, so that I could start to Italianize at once, you would greatly oblige. I have about 250 colonies, the majority hybrids, about 25 pure."

The point that I wish to make is that this man has been reading our bulletins regularly, in which we have sent the most vigorously worded warnings against danger of continuing the use of black bees. He has been told that European foul brood was in his vicinity. In spite of that fact he is not willing even yet, when he feels quite sure the disease is in his apiary, to order queens and Italianize his apiary until we go to the expense of sending a man there to show him and tell him what he already knows. On the other hand, we have successful extensive beekeepers who have been treating a few cases each year for the last three years, and have never melted a single comb for the purpose of curing European foul brood. I trust that this will also answer Dr. Miller's question in your July 1st issue.

Guelph, Can., July 8, 1915. Morley Pettit.

[Quite in line with this is a letter written to our State Inspector N. E. Shaw at Columbus, by W. C. Eastman.]

Mr. N. E. Shaw:—Replying to your inquiry regarding European foul brood that appeared in my yard last season I am pleased to report that I have the yard almost entirely cleaned up.

A year ago I had over 100 colonies of bees, mostly blacks, a large percentage of which showed more or less European foul brood, some of them so bad that I could not save them.

Acting on the advice of those having had experience I decided to try requeening with best Italian stock as a cure; and as I was determined to do or die I ordered queens for every one not containing a pure Italian queen, and succeeded in introducing nearly all of them. The new queens were introduced as soon as the old one was removed, and the cure seemed to begin at once, as the Italian brood seemed to be almost immune.

All combs were saved and used as if no disease existed and more trouble was expected; but this spring only three colonies showed the disease, and two of them were blacks that did not accept Italian queens. The other is an Italian colony that probably had some very bad combs. The blacks were requeened; and one of them being left queenless for about two weeks showed very little disease, and the others are fast coming my way.

On combs that were fairly rotten last year I have now the strongest colonies I ever owned, many of them covering 30 L. frames with two supers added. Perhaps not all Italian bees are as immune as these.

No colonies were lost after re-queening, and over 90 queens were accepted.

Rock Creek, O., June 21. W. C. Eastman.

Bees on Dogwood.

In the past fortnight, when clover-time has been an actual honey-famine because clover had no nectar and locusts had no bloom, I have seen my bees working for honey on the cornel, otherwise called dogwood. There are different species of *Cornus*, blossoming at somewhat different dates, several of them fairly common, both wild (most of them near water), and in ornamental shrubbery (where they seem to thrive, water or no water). I cannot see that they have much nectar or any place in the flower where they could put it; but they seem to be some resource in a time of stress like this. These true dogwoods are no more relation to the "poison dogwood" than a horse-chestnut is to a chestnut, or a bee-martin (kingbird) to a real martin such as lives in martin-houses. I have heard authentic-sounding stories of people being poisoned by the "flowering dogwood," a true dogwood flowering in May, but I never fairly believed them.

Ballard Vale, Mass. Steven T. Byington.

Cold Weather in the Midst of the Honey-flow.

Conditions and weather here are about the same as in other western states. It was cold and windy up to June 15; then for two weeks we had a good flow; but it has again turned cold and cloudy, clearing at night, with light frosts in the morning. But in spite of the cold the flow continues good. Alfalfa is in full bloom, and very fragrant. I have never before experienced such a cold spell coming in the midst of the honey-flow without the flow being checked. Nevada seems to be an exception.

Reno, Nev., July 6. M. W. Harvey.

Good Record for an Old Queen.

Three years ago I started as a novice with one colony and the *A B C of Bee Culture*. I increased this one colony to four, and that winter bought three colonies that were starving from lack of stores.

In 1913 I increased my seven colonies to fourteen, and got 900 pounds of comb honey. This took the blue ribbon at the mid-winter fair.

In 1914 I increased to thirty-three colonies and took off 11,000 pounds of comb honey, not counting the fall honey-flow. How is this for a queen four years old?

Kissimmee, Fla. B. E. Robinson.

A. I. Root

OUR HOMES

Editor

Her price is far above rubies.—PROV. 31:10.

Train up a child in the way he should go, and when he is old he will not depart from it.—PROV. 22:6.

By invitation I gave a talk to the Wooster summer school of teachers (mostly schoolma'ams) at Wooster, O., the suggested topic being "Some Lessons of Eighty Years."* As I am not quite 76 years old I cannot very well go back as far as eighty years of *personal experience*. I have a dim recollection, however, of something that occurred 72 years ago. I remember a broad open fireplace with a brisk warm fire, for it was winter time. I was supported on warm pillows in a rocking-chair. At the right and left and back of me thick warm blankets were hung up. How did I come to be in this predicament and with such surroundings? Well, some days before, I had caught cold, and I think I had an attack of croup. Our family doctor was called; and as he went away he said:

"Do not let that child even so much as look out of doors, for he is threatened with lung fever."

Well, not long after the doctor's visit, preparations were being made to brimstone a hive of bees to get the honey. Let me remark here that my good mother had said that at even that time of my life I was a great hand to ask questions. I wanted to know the whys and wherefores of all the wonderful things going on in this teeming world. I had tasted honey, and asked *where* the bees got it and how they got it. Then when they talked of killing the faithful and industrious little insects I had a lot more questions. I asked if there was not some other way, and where they would get more bees to gather honey the following summer, etc.

Notwithstanding the doctor's orders, even if I knew of it, in my enthusiasm to know more about the bees I forgot or ignored it; and when the wooden latch to that rustic door of the little log house was "unketched" I pulled the door open, and, childlike, pushed out to see what they were doing with their shovel of coals and brimstone.† I stubbed my toe, or slipped on the snow, and the first thing the crowd around the hives knew of my presence was to find me fallen down, with my hands sprawled out in the snow. By this time my mother or one of my older sisters was asking, "Where is the baby?" I was carried in and placed in front of the fire as mentioned above. I grew rapidly worse, and *finally* a *council* of doctors was *called*. *But* they said it was too late—the child was past help; his falling down in the snow was more than he could stand in his frail condition. They gathered up their medicines, and told my good mother there was no use of their coming any more; the baby would not likely live till morning. But *mother* did not give up. Did you ever know a mother to give up? She watched over me, and in the stillness of the night prayed that the little spark of life might be kept going. After days and perhaps weeks of untiring care and devotion her prayers were answered. Some one inquired which one of the three doctors had succeeded in pulling me through. The doctor replied, "No *doctor and no medicines* saved his life. It was the mother's love and the mother's prayers." "Her price is far above rubies." I lived; but I was a feeble child, not only for months but years. When I went to school they laughed at me and called me "Pipestem." But although I was pipestems physically I could keep up with any of the rest, mentally. As soon as I was old enough I was taken to Sunday-school; and I one sabbath astonished the class by repeating forty verses of scripture; and when the older children laughed at my unending curiosity and odd questions, mother used to say, "Amos, when he grows up, will be just as smart and capable as any of you. You watch and see."

As a consequence she gave me, perhaps, more loving care than any of the other six who were strong and healthy. Some good doctor told her to keep me in the open air as much as possible; and this is why I have always been so fond of gardening and seeing things grow. She taught me to care for the chickens, and told me all she could about bees.

I think I was between nine and ten years old when I found a chapter on electricity in our old doctor book. At that time we had so few papers and periodicals in the home that I had at that age read over pretty much everything in print to be found in our humble home, including the dictionary and the "doctor book." I was so excited

*With some changes I propose to give this talk, and I hope my good friends will pardon me if I tell *again* some things that I have already given on these pages in the past. To make my story *continuous* I cannot very well *avoid* these repetitions.

†Please remember that friction matches were not invented at that early day. The only way to start a fire was the old-fashioned flint and steel, or go to the neighbors for a shovelful of coals; and it was getting a shovelful of coals out of the old fireplace to brimstone the bees, probably, that aroused my curiosity.

about what I found in regard to electricity that I soon had a home-made battery. It did not work, however, as I expected, and I applied to the family doctor and to my schoolteacher. When I got hold of Parker's Natural Philosophy I was almost wild with delight. I shall always remember the evening when I first got my battery to work. A traveling lecturer had magnetized my knife, and with it I had made a magnet of a good-sized steel pen. It was balanced on the head of a pin driven into the table. Now with one of the battery wires laid on the table just under the steel pen (that was pointing north) I could make it swing around by making and breaking the electric current through the wire; and when I could make that magnetic needle bob back and forth by simply touching the wire at *the further end of the room* I was delighted beyond measure.

A little later the principal of our Mogadore schools made me a present of an old book called "Conversations on Chemistry." I read it over and over, backward and forward, from beginning to end.

When I was thirteen years old an uncle invited me to spend the winter with them at Wellsville, on the Ohio River, promising to give me all the advantages of the Wellsville high school. Before deciding in what department I belonged, the superintendent put me through an examination. As he did not mention natural philosophy and chemistry, and knowing they had a fairly well-equipped laboratory, I asked if I could not have chemistry and philosophy with my other studies. I noticed a sort of smile on his face as he questioned me in regard to these branches; and I took great pride in "showing off" my acquirements. When he decided that for the present I had better stop these scientific studies I protested. He replied something as follows:

"My young friend, did you ever see an apple-tree with great branches all off on one side? May be you have seen such a tree after the wind had blown it over because it was 'lopsided.' Well, you are like that tree. You have been following your own bent in these studies that usually have a place later on, until you are 'lopsided.' Just now you particularly need grammar."

When I replied that I did not *like grammar* he laughed and said:

"That is about what I expected, and it is *our* business *here* to help you to *like* grammar."

Then he took me into one of the rooms and brought me to one of the women teachers. At first sight I was drawn toward her, for I thought she looked like my good mother, and I was just getting homesick, especially when I was told I could not study chemistry and electricity nor go into that laboratory which had been in my mind's eye since the first thought of going to Wellsville. The superintendent said, "Miss Udell, here is a young man who thinks he does not like grammar. Now, I hope you will be able to persuade him while he is with you that he *does* like grammar."

She put out her hand to me with that kindly smile of hers, and said she felt sure we should be good friends anyway. Then I made a mental resolve that, if we did not get to be good friends, it would not be *my* fault. Through that four months of schooling the prospect of getting a glimpse of her encouraging smile was the strongest incentive to work while at my studies. At that time, over sixty years ago, we used to "go up" in the grammar class as we did in spelling. I remember the superintendent coming in after I had been a few weeks there, and saying to Miss Udell, "Oh! how about that boy who did not like grammar? How did you two get on together?"

With some pride, no doubt, she pointed to me and remarked smilingly, "He is at the head of the class, as you see, and stays there; and he is making remarkable progress in all his studies as well as in grammar."

Let me pause a little here. Suppose that at that early age I had been allowed to have my own way, and study what I liked, and skipped grammar. Imagine, if you can, the predicament of the editor of a family journal that goes over all the world, and yet who has never studied grammar! I do not know but some of the other pupils thought Miss Udell was partial to me, and gave me more of her time and attention than she did the others; but if so it was because I tried so hard to please her; and I thank a kind Providence that it has always been easy for me to learn *anything* when I get right down to it and work hard.

Miss Udell, bless her memory, was not the only schoolteacher who made friends with me and gave me a helping hand; and as a consequence I can most devoutly say, as did King Solomon, of the good bright "school ma'ams" all over our land, "Her price is far above rubies."

I attended Sunday-school faithfully until I was about eleven years old. When I was four years old my parents moved into Summit County, where my mother's father gave us a home. Our circumstances were such that it was a task on the part of my good father to provide for a family of seven; and my oldest brother, who was but a little more

than a dozen years old, found work in a pottery. Some of the men in the shop were not only profane, but they were well known as unbelievers in the Christian religion, and they poisoned this young brother's mind until he stopped going to Sunday-school, making him think it was only a place for little children, etc.

Let me put in a word of warning to parents right here. No matter what *price* may be offered, do not let your boys (or girls) go to work under the influence of ungodly men. I am sure my mother demurred and protested; but father thought he could not keep so many unless they helped to earn a living. Finally my brother and I, when we stopped going to Sunday-school, wandered off into the woods Sundays and got among bad associates. Father had often expressed a wish to leave the village home and go back to the farm in Medina County; and I think he gave as one reason that he thought his growing boys would be better off on the farm back in the woods. We accordingly moved back when I was a dozen years old. But my good father failed to calculate that there are bad boys in the *country* as well as in the town and cities. I have already mentioned how he finally laid down the law and told my brother and me one Sunday morning, "Choose ye this day whom ye will serve." I have told you about how my brother finally turned the scale and recommended that we both go to church, at least for once. I have told you, also, that on that eventful Sunday I got about the first glimpse of Mrs. Root. She was one of the singers in the choir. By the way, friends, as you may have already discovered, I have been all my life greatly given to hobbies; and I sometimes ride these hobbies fast and far. The traits of childhood, the desire to investigate and find out all that is to be known about the wonders of God's creation, have followed me through life, and some of my happiest moments have been, perhaps, when I was investigating and exploring, to the further limits, some of God's creation. I believe I have always had a peculiar liking for the other sex. My good mother said that when a child I always preferred to play with the girls. The boys were, as a rule, too rough for me. Through my youngest sister, who was a very close friend of Mrs. Root in her childhood, I soon became acquainted with Mrs. Root. The reason I had not known her or of her was because I had been away attending school as mentioned above. Fifty or sixty years ago it was the fashion for boys of sixteen or seventeen years to go "courting" the girls. The two usually had a room by themselves, and often stayed there far into the night unless some good father or mother interposed. In due time I got in the habit of going home with her who is now Mrs. Root, after church; and when it was time for *me* to go home I did not seem to know it. One Sunday evening Mrs. Root said to me, "You are going to school, and I am going to school. Our good parents are trying hard to give us the benefits of an education. It is time for you to go home so that both of us can get the rest we need, to give proper attention to our studies."

I did not like the idea of being dismissed, and finally declared that if I went home *then*, I never would come back again. Kindly but firmly she told me that in such a case it would be better for her, at least, if I did not come back. I said, "All right." I went out and closed the door in a not very pleasant frame of mind. I started down the hill toward the river, with long strides. But my strides kept getting shorter and shorter as I reflected. When I approached the river bridge I came to a standstill. I reflected for a minute. At that time I had not found that precious text at the head of our talk; but I did reason, perhaps, that my dismissal indicated, at least along the line of the text, "her price is far above rubies." I started slowly to go back. I walked faster, and finally hurried up to the front door that I had just left. Her room was upstairs, and her window was over the front door. I picked up a little pebble from the walk and tossed it against the window-pane. The sash went up as I expected it would, and I said, "Sue, forgive me. You are right and I wrong;" and in her usual way she simply said, "Thank you; good night," and then the window went down. How many girls are there who are reading these pages who have the good sense (especially at fifteen) to do as Mrs. Root did?

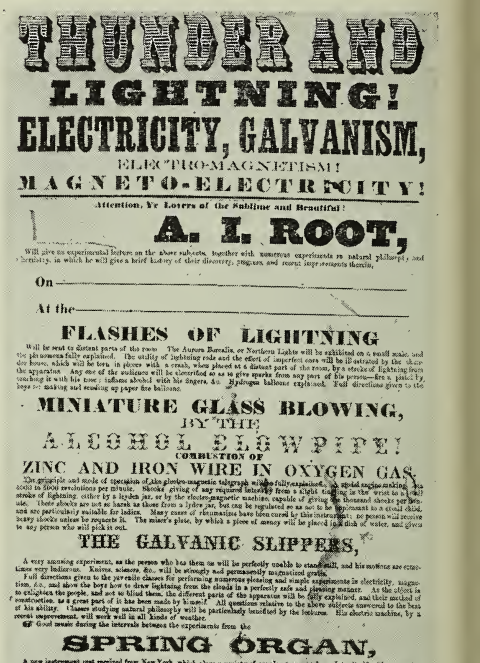
After this it was pleasantly understood that I was always to go home at a particular hour. But I not only made my calls on Sunday evenings but also on Thursday evenings, and sometimes *between* times. I attended to my studies and was making fair progress; but Mrs. Root did not learn as readily as I did. My frequent visits interrupted her studies. She had the good sense, even if I had not, to know that we both were *too young* to keep up any such fashion of being together *so often;* and finally she soberly and kindly, but perhaps sorrowfully, told me that she felt sure it would be better for both of us to stop our frequent visits together for some time—

perhaps several years. I protested, and I do not know but I threatened again; but she declared her conscience told her it was best. I asked her to set the time, say within two or three years, but she refused to do even that. She said we both were quite liable to change our minds before we became of marriageable age and it would be better to leave it with no pledge or promise. Then I went off into the "cold empty world," as thousands of other boys have done under similar circumstances. If you want to know how many men and women commit suicide just because they have been disappointed in love, look over the daily papers. Other young men and boys, I am sorry to say, go and get drunk, and say they do not care *what* becomes of them. I did neither. I just decided that, if I could not court the *girl* I loved, I would court *science* and become a "great man."

During the winter that followed, I studied harder than ever before. In school, in addition to the common studies, I had algebra, geometry, and shorthand, and was making experiments in chemistry and electricity during the evenings. In order to get exercise so that I could stand so much study I walked two and a half miles to school and back again, and cut all the wood to replenish the fire for the family, and while I experimented sometimes late at night it did not hurt me a bit. The walk through the woods developed my bones and muscles so they did not call me "Pipestems" any longer.

Now right here let me tell you something that will more fully illustrate Mrs. Root's good sense and wisdom. A fellow-student—in fact, a young man with whom I was intimately acquainted, told me, in speaking of what I had accomplished during that one winter, that *his own* schooling was just about a complete failure. When the school first opened he got in with a class of boys and girls who called themselves the "Euchre Party." They got into such a craze for playing cards that they spent about all their time, not only during the day but late at night, in card-playing—an occupation that amounted to nothing or worse than nothing; and when they came to recite they were just a drag on the school. Years afterward this man realized what he had lost by *wasting* the best hours of his early manhood. His good father and mother worked and scrimped on the farm to provide the means for him to go to town and attend school. Do you wonder that I feel pained whenever I see or hear of *card-playing?*

Another point comes in right here: The average boy or girl is far better off in the home under the father's and mother's care, especially when getting an education. My tramp of two and a half miles every night and morning, and the muscular exercise given by chopping firewood, were *splendid investments* when I was just turning from boyhood to manhood. The parents of these card-players paid for their board, and they had a room of their own, so they (boys and girls both) could sit up *all night* if they chose, and no one were near to hinder.



THUNDER AND LIGHTNING!

ELECTRICITY, GALVANISM,

ELECTRO-MAGNETISM!

MAGNETO-ELECTRICITY!

Attention, Ye Lovers of the Sublime and Beautiful!

A. I. ROOT,

Will give an experimental lecture on the above subjects, together with numerous experiments on natural philosophy, and chemistry, in which he will give a brief history of their discovery, progress and recent improvements thereto.

On ——

At the ——

FLASHES OF LIGHTNING

Will be sent to distant parts of the room. The Aurora Borealis, or Northern Lights will be exhibited on a small scale, and the phenomena fully explained. The utility of lightning rods and the effect of imperfect ones will be illustrated by the shock they receive, which will be torn in pieces with a crash, when placed at a distant part of the room, by a stroke of lightning from the apparatus. Any one of the audience will be electrified so as to give sparks from any part of his person—for a paltry, trifling consideration. Inflame alcohol with his fingers &c. Hydrogen balloons exploded. Full directions given to the boys for making and sending up paper fire balloons.

MINIATURE GLASS BLOWING,

BY THE

ALCOHOL BLOWPIPE!

COMBUSTION OF

ZINC AND IRON WIRE IN OXYGEN GAS.

The principle and mode of operation of the electro-magnetic telegraph will be fully explained. A rapid engine making 4000 to 6000 revolutions per minute. Shocks giving of any required intensity from a slight tingling in the wrist to a full stroke of lightning either by a leyden jar, or by the electro-magnetic machine, capable of giving six thousand shocks per minute. These shocks are not so harsh as those from a leyden jar, but can be regulated so as not to be unpleasant to a timid child, and are particularly suitable for ladies. Many cases of rheumatism have been cured by this instrument; no person will receive heavy shocks unless he requests it. The miser's plate, by which a piece of money will be placed in a dish of water, and given to any person who will pick it out.

THE GALVANIC SLIPPERS,

A very amusing experiment, as the person who has them on will be perfectly unable to stand still, and his motions are extraordinary indeed. Knives, scissors, &c., will be strongly and permanently magnetized gratis.

Full directions given to the juvenile classes for performing numerous pleasing and simple experiments in electricity, magnetism, &c., and show the boys how to draw lightning from the clouds in a perfectly safe and pleasing manner. As the object is to enlighten the people, and not to blind them, the different parts of the apparatus will be fully explained, and their method of construction, as a great part of it has been made by himself. All questions relative to the above delicate science to the best of his ability. Those studying natural philosophy will be particularly benefited by the lectures. His electric machine, by a recent improvement, will work well in all kinds of weather.

☞ Good music during the intervals between the experiments from the

SPRING ORGAN,

A new instrument just received from New York, which plays a variety of popular tunes, and regulates itself without requiring the least attention from the operator whatever. This instrument is intended for an accompaniment to the Galvanic Slippers as the person who has them on will be compelled to keep time to the music, whether he wishes or not.

"Them will dance who never danced before,
And those who have danced will dance the more."

☞ Experimental illustrations of the Electric Kiss, a very amusing as well as a quick way of procuring this affectionate salutation.

PROGRAMME:

Electricity, its discovery illustrated.
Machine, mode of action.
Dancing ball and images.
Electrical snow storm.
" sparks.
Leyden phial, its discovery.
Shock illustrated.
Electrical spectacles.
Electrical fayet.
Electrical bell.
Electrical pistol.
" wand.
Aurora Borealis.
Illustration of eggs, sugar, etc.
Ammonia-cards.
Lightning.
Storm.
Thunder bone,

Composition and decomposition of water.
Electrifying a person.
Blowing glass.
Combustion of iron and zinc.
Green and crimson fire, &c.
Magnetism and its discovery.
Galvanism, its discovery.
Galvanic battery.
Electro-magnet.
Electro-magnetic top.
Telegraphic machine.
Register.
Shocks from electro-magnetic machine.
Miser's plate.
Slippers.
Shocks in a circle.
Shocks from leyden jar.
Magnetic needle.

CONCLUSION

Admittance 10c. Children under 13 years, 10c.

☞ Doors open at 6 1-2, and commences at 7 1-2 o'clock.

Photographic copy of A. I. Root's "program," as he had it printed when he was 16 years old—almost 60 years ago.

I wrote several articles for the *Scientific American* before I was seventeen. These were accepted and published. In the mean time I began to go into the country schoolhouses and give talks and experiments. The idea that *a mere boy* was giving lectures attracted attention. I had full houses, and

with the money I received I was able to purchase better and more up-to-date apparatus. A few days ago the editor of our Medina *Gazette* sold out; and in removing some stuff from the office he ran on to an old handbill printed almost sixty years ago. On the preceding page is a copy. You will notice there is a blank before the name A. I. Root. Do you want to know what word occupied that blank? It was "Prof." Mrs. Root was still keeping track of me, although it was rather at arm's length. She objected to the word "Prof." and asked me what I was a professor of. I told her I was a "professor of electricity and chemistry," and that "folks wouldn't come" unless I put on—"Professor." Just think of it, friends—"Prof." of electricity and chemistry at the age of sixteen! Did you ever?*

Before I was quite seventeen I decided to go off into the big wide world. My father laughingly told me he would have to send me money to get home with before I had been gone a month. I replied:

"Possibly you will, father, but just wait and see."

My father's little prediction did me good. I doggedly determined that, come what would, I would not send for money to get home. My first trip was out in the western part of the state in what is called the Black Swamp. I fell sick and got out of money, and had to leave my apparatus at a hotel. Between sundown and sunrise next morning, on one occasion I walked 24 miles to reach a sister of mine who lived in Elmore, Ottawa Co., but I finally came out ahead, and when I got home about a year later I had some money in my pocket.

In order to keep my apparatus in repair I often called on jewelers in towns I passed through; and at one place I took a little rest and paid a jeweler $25 for two weeks' instruction in repairing clocks, watches, and jewelry. When I was 19 I was sufficiently expert so that one of our Medina jewelers asked me to care for his shop while he went east to buy goods. During the 4 or 5 years that had elapsed since Mrs. Root had dismissed me I had seen but little of her. I thought it was her business to send me word saying I might come back. But she evidently did not propose to do anything of the kind. While I was taking care of the store mentioned, one day Mrs. Root opened the door and looked in; and when she saw me instead of the proprietor she hesitated and said: "Why, isn't this Mr. Herrick's shop?"

I replied, "Yes, this is Mr Herrick's but I am taking his place for a few days while he has gone east."

She was about to close the door and go away: but I ventured to suggest that perhaps I could wait on her. She finally came back, saying she simply wanted a piece of jewelry repaired. After that had been attended to I ventured to ask her if she was staying in town. Without looking up she replied that she would probably stay with her sister (who lived in town) over night. Then I ventured to ask if I might deliver the piece of work in the evening. At this she ventured to look up, and her eyes met mine. She replied faintly, "If you like." I knew then, and she knew, that the "embargo" was raised. That was the night of the terrible frost, June 4, 1859. The next morning the landscape was white with hoar frost. The wheat was killed, the fruit was gone, and the gardens were ruined. The price of flour went up to an extravagant figure until people got over their fright. Now, when everybody else was sad and sorrowful my heart was light, and I was as happy as a bird. The "cold empty world" was past and gone. What did it matter whether we had frost or cyclones, or even earthquakes? She whose "price is far beyond rubies" had linked her life with mine, until death should separate; and may God be praised for having *permitted* us to tread life's pathway together for more than 54 years. Most faithfully has she kept *her* part of the pledge.

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*When I, a few days ago, held up that old program before Mrs. Root, she immediately centered her gaze on the "Prof." before the name A. I. Root, and said "Please cut that out before anybody sees it."

"But," said I, "why, Sue, that was put on there *sixty years ago*."

"*I do not care how many years* it was—cut it out before anybody sees it."

"But I was only sixteen years old when I ordered this bill printed that way."

"I do not care whether you were sixteen or sixty—I would not want anybody to know that you were ever so foolish at *any* age."

The lapse of sixty years' time doesn't seem to have changed her convictions very much. She "is of the same opinion still." I did as she directed, as you see; but I did not tell her I was going to have it printed.

Now just a word in conclusion. There is a great deal said about "eugenics" just now. The attention of young men is being called to the fact that the kind of boys and girls they give the world depends largely on the *girl* they choose for a wife. If you want your children to be a blessing to the world, instead of helping to fill our penitentiaries and asylums, consider carefully before you choose. If you want a partner for life whose price *is* "far above rubies," do not look for her in the dance-hall nor at the card-party, but, rather, seek to find her in the church, in the Sunday-school, Endeavor society, etc. Some girl singing in the choir of some country church will very likely be the one in after years to show that "her price is far above rubies."

HIGH-PRESSURE GARDENING

THE SPINELESS CACTI OF THE FRUIT-GROWING VARIETIES.

When I first visited California I was a good deal interested in the beekeepers' ranches. At that time the proprietors of most of them were single men. I was especially pleased and attracted by the beautiful home of G. B. Woodberry, of Glendale, near Los Angeles. Some of our older friends may remember that about that time I was particularly vehement about urging these bachelor beekeepers to have a wife, at least when they were, say, 25 years old or more. Well, the next time I visited that pretty little home I found a wife there. Of course I do not know how much my advice had to do with it; and with this preface I want you to read the nice letter below.

Mr. Root:—I read with interest your remarks concerning the spineless cactus some time ago, and I am sending you by parcel post a cutting from the variety called the Malta. It may grow in Ohio during the summer, and it can be taken up and carried to Florida in the fall if you wish to try it there. I also send some of the literature of five years ago concerning the subject.

I find it makes a good hedge-plant, and, with garden culture, a remarkable growth. Without care, however, the results are very much less—at least with this variety.

I had one plant in the garden that set over 200 new slabs the third year while a similar plant on the ranch, without water, set only a few.

I am told by the Los Angeles branch of the A. I. Root Co. that you and Mrs. Root expect to be in California this summer. You will, no doubt, remember me and the strawberries which you picked at my place in the winter when you visited me over twenty years ago. I was a bachelor then; but now I have a daughter who graduates from college this spring. I still have the ranch, a "mess" of bees, and shall expect a call from you and Mrs. R. when you visit Los Angeles. The Glendale cars run to within 200 feet of our home in Glendale.

Glendale, Cal., April 10. G. B. WOODBERRY.

Before this letter came I had been longing for a sight of my cacti growing in Florida; and I had really thought of trying a leaf in my Medina garden, even if it should cost me a dollar or more. Imagine, then, my happy surprise on receiving a leaf 19 inches long, 8 inches wide, and weighing 4½ lbs., and so smooth and free from spines that you might give it to the baby to play with. The variety is what is called the Malta. Below is a description of it:

MALTA.

A good, hardy, rapid grower; leaves, medium size, 18 inches long by 8 wide; very few short, weak, hair-like spines; bristles almost wholly absent; fruit nearly 4 inches long by 2 in diameter; skin yellow, turning to light red when fully ripe; flesh, salmon, with crimson shadings; seeds small; bears abundantly even when quite young. A most desirable variety.

What do you think, friends, of a cactus fruit 4 inches long and 2 inches in diameter, and more luscious than an orange? By the way, perhaps I should say that Ernest says he tasted of the fruit during his recent trip in California, but did not like it very well.

I am sure our good friends will excuse me if I digress enough here to say that Mr. Howard R. Calvert, my next oldest grandson, was married June 29 to a young lady he met in California—a daughter of Mrs. H. G. Acklin, who for many years had charge of our St. Paul agency. Howard and his bride started immediately after the ceremony for their home in San Francisco, and I shall now be able to get accurate information in regard to spineless cacti, both fruit and fodder, from California as well as Florida.

You will notice that friend Woodberry agrees with the statement made by the Department of Agriculture on page 515, June 15, in regard to growing plants under culture compared with letting them grow wild. Before I got this information I had pretty well satisfied myself, from the way my plants grow in Florida, that, like all other vegetation, it would respond to thorough culture and fertilization.

As there has been some contradictory information in regard to planting, I copy the following from one of Burbank's circulars.

SPECIAL DIRECTIONS FOR SUMMER PLANTING OF THE BURBANK CACTUS.

1. Dry plant for a day or two in the shade.
2. Plant cutting in the ground to the depth of one-half.
3. If the ground is moist, pack the earth about the cutting firmly, and water after a few days. If the ground is dry, water on planting.
4. Shield the cutting from the direct rays of the sun until rooted to prevent sunburn.
5. Do not water too much. Never keep the soil soggy.

SPINELESS CACTUS AND THE FLORIDA GROWER, ETC.

In our issue for June 15 I published some of the claims of Samuel C. Kidder in regard to the spineless cactus. Well, our friend Kidder has been in the habit of carrying an advertisement for some time back in the *Florida Grower*. It seems that the *Grower* considers his claims almost too extravagant, and, as a consequence, Kidder's advertisement has been recently changed so as to read as below:

SPINELESS CACTUS.—Certain varieties are very valuable, notwithstanding some professional opinions and chemical analysis. This paper refuses to publish evidence in its favor from a reliable resident grower. Send stamp for catalog of varieties that are right. SAMUEL C. KIDDER, Monticello, Florida.

I congratulate the *Grower* on keeping an editorial eye on its advertising pages as well as on the reading-matter. Mr. Kidder now must shoulder the responsibility, and it is up to him to give us unbiased proof of what he claims as possible with the new creation in the way of spineless cactus.

SPINELESS CACTUS—BURBANK, AND THE OTHER KIND, ETC.

Mr. A. I. Root:—Your notes on spineless cactus interest me very much, especially the *ignorance* most writers display in regard to it. They seem to name all spineless cactus "Burbank." Now, Mr. Burbank has originated (or claims to have originated) several varieties of cactus that make an enormous growth of slabs and fruit *at Santa Rosa, Cal.*, where they have rich adobe land and an annual rainfall of about 25 inches; but the same varieties of cactus hardly grow at all here in Fresno Co. with or without irrigation; but the government cactus (or, rather, the cactus imported by the United States and propagated at Chico, Cal., and distributed free) grows here very nicely, and I have growing on very poor land about 2500 slabs. I was at Santa Rosa at Mr. Burbank's place, and saw a growth of 200 tons per acre (not a whole acre), and I saw the fruitage of *90 tons per acre* (not a whole acre).

I strongly suspect that Mr. Burbank highly fertilized the *already* rich land. In fact, I saw white powder on the ground, and it was not alkali either. I have spent considerable time and probably $50 in money investigating and buying spineless cactus. Many varieties are worthless. Some varieties are valuable only for fruit, which carries a high percentage of sugar, and other varieties produce slabs at a great rate. It has about the feeding value of pie-melon, and stock will *live over famine times* on cactus; and since it can be grown and allowed to accumulate from year to year on the land until 1000 tons or more has accumulated on the acre, it is reasonable to figure that when famine or dry years come along, as they have done and will do again, the cactus will be valuable to save the stock from starving to death, as they often do in the West and Southwest. I have seen the chickens peck the slabs all to pieces when green feed was scarce.

I have seen plants produce here in Fresno Co., at Mr. J. C. McCubbin's of Reedley, Cal., at the rate of 114 tons of slabs per acre (Chico or United States varieties). I think it is worth $1.00 per ton as a dry-year feed-over ration; and 1000 tons can be accumulated on an acre in five years with very little labor, irrigation, or care, and will need replanting about once in fifty years. The land gets richer and richer where cactus grows. Thus, it seems to me to have some real value. The Miller & Luz Co. planted 80,000 slabs for this very purpose. The cactus at Mr. McCubbin's was not *irrigated* nor *sub-irrigated*, and the rainfall was 11 inches. Poor land will grow cactus; but rich loam grows better, and yields better cacti. I have read and studied all the literature to be found in the library of the University of California on the subject, and I have seen it growing under all conditions I could find, and am experimenting with it, and still hope to find it of value. I can tell you a great deal more about cactus if it is interesting to you.

Selma, Cal., June 27. O. S. DAVIS.

We are very thankful to get the above information right from headquarters, or, rather, from near where Burbank brought about his wonderful results. It seems to me that a dollar a ton is a rather low price for cow feed compared with timothy hay and alfalfa—say from $15 to $25 a ton. On page 515, June 15, I copy from a government bulletin the statement that an acre of prickly pear is worth more than six times the value of sorghum for feeding purposes. According to this a ton of sorghum is not of very much value, say just as it is cut for cattle feed. It seems to me there is a discrepancy there somewhere. Also notice what friend Borcher says about these for feed on page 557, July 1. I am also pleased to note from the above that the chickens will take it as green feed. I am sure this is going to be quite an item in its favor in Florida.

Later.—To-day is July 26; and the cactus mentioned above, planted about July 1, has now eight little slabs started (one almost as large as my hand) and it is growing rapidly every day. I expect to give you some pictures of it, illustrating how rapidly this spineless cactus grows when it once gets a start.

TEMPERANCE

A LETTER FROM THE GOVERNOR OF KANSAS HIMSELF IN REGARD TO PROHIBITION IN THAT STATE.

No doubt our readers have been pained to see statements in our daily papers to the effect that Kansas is "Hard up" financially, etc., in consequence of their "puritanic prohibition law." Before submitting to our readers the positive statement of the governor himself, we give below a letter from our untiring and indefatigable prohibition friend Minnie J. Ellet:

East Akron, Ohio, July 22, 1915.

My Dear Brother Root:

A few weeks ago one of the liquor-license commissioners of this county told me that the governor of Kansas had said that all his state could do to save herself was to go back to license and regulation. I told him one of us was grossly misinformed in regard to Gov. Capper's attitude, and that that week's *Union Signal* had a splendid article, excerpts from the governor's speech before Kansas bankers. I told our commissioner that, and he set it down as "misquotation of a temperance paper that always makes things too big." I wrote to Gov. Capper that night, and on another sheet I'm sending you the exact copy of that letter.

Yours for God's glory through the highest *good* of all for whom he died. MINNIE J. ELLET.

Below is the letter referred to, from Governor Capper, of Kansas:

STATE OF KANSAS
ARTHUR CAPPER GOVERNOR.

Topeka, June 24, 1915.

Dear Miss Ellet:—I have your letter of June 22 and note the statement that Mr. C— attributes to me. Neither Mr. C— nor any one else ever heard me say that "prohibition is a failure wherever tried," or any other statement of a similar nature. But I have said, and am glad to repeat here, that I think one of the greatest blessings ever bestowed upon this state, and the law which is doing more to make good men and women, and to bring prosperity and happiness to the people of Kansas, is the amendment to the constitution, prohibiting the traffic in intoxicating liquors.

Kansas has had prohibition for about thirty years, and it may be truthfully said that the law was never so well enforced as now, and never so generally approved by our people. Approval, indeed, is too mild a word with which to express the attitude of Kansas people toward this provision of the state constitution. Most of them are enthusiastically in favor of it. It is *the* portion of the fundamental law of the state that is nearest their hearts.

I am returning the clipping from the *Union Signal*. I am correctly quoted in that article.

I am emphatically and enthusiastically in favor of national prohibition, and am always glad to do anything I can to hasten the day when there will not be a saloon in this or any other country.

With best regards, I am

Very respectfully,

ARTHUR CAPPER.

THE "ACHAN" OF THE LIQUOR-TRAFFIC.

Some of the friends thought, no doubt, I was rash in suggesting in Our Homes for June 1 that God permitted this great war, with its awful loss of life and property, because the United States and other nations persisted in *cherishing* the liquor-traffic for the revenue, etc., it furnished. With this matter in view it is a little refreshing to find the clipping below, which I take from the Chicago *Farming Business*.

BREAD OR BOOZE.

Great Britain uses more grain in the manufacture of alcoholic liquor in one year than she produces in her own territory in the same length of time; so that, in effect, her people are not working their farms for the purpose of making bread with which to feed themselves and their fellow-citizens. Rather, they are working them for the express purpose of manufacturing booze with which to destroy the economic efficiency of themselves and their fellow-citizens. The whole country is dependent on its imports for its bread.

We cannot conceive of any poorer business than this, that a nation should use all the grain which it produces in the manufacture of liquids which sap the vitality and efficiency of its people without adding to any one desirable or useful quality, thus leaving the nation dependent upon the outside world for its bread and cereal foods. Such a practice is a fundamental economic error, and it seems to have taken this great war to teach Great Britain the folly of such a method.

The great war of the past nine months has taught the nations of the earth, as no moral wave or religious campaign ever could have taught them, the absolute uselessness of alcoholic beverages. It is not a moral lesson which is being taught so much as it is an economic lesson. And out of this war will come the greatest good which ever yet has been done to the cause of temperance and of personal and national efficiency, for it will have taught very forcefully the individual and national damage which comes from diverting the grains of the world to the manufacture of harmful drinks rather than using them for the manufacture of bread and other foods.

When I wrote that Home paper I was not aware that Great Britain used practically every bit of grain she raised for making booze; and I was not aware, either, that Great Britain was getting toward the point of starvation. See recent dailies in regard to the way the "high cost of living" has gone up in London. It rejoices my heart to see the way in which our agricultural and farming papers are standing up for prohibition. It is a terrible punishment we have been receiving, I admit; but I am firmly convinced that out of this great war will come one of the greatest benefits to humanity. I wish the clipping above might be copied and sent broadcast over all the earth. May God be praised that we have at least *one* farm paper and one farm *editor* who has enough breadth of character to look ahead and recognize the lessons God has been striving to teach the whole wide world.

GOD'S KINGDOM COMING; MORE EVIDENCES OF IT.

We clip the two following items from *Farming Business*, of Chicago:

BOOZE OFF THE BOARDS.

The Associated Bill Posters and Distributors of the United States and Canada will not take any booze advertising the coming year, according to a promise by Donald Ross, testifying before Judge Landis in Chicago for the bill posters.

ARREST HOTEL-KEEPERS.

Chicago hotel owners and managers will have to bow to the law soon, according to statements of the anti-saloon leaders. Managers of the Sherman, Fort Dearborn, and La Salle have been arrested for selling liquor on Sunday.

And here is something from the Cleveland *Plain Dealer* of July 1:

ALABAMA BEGINS GRAPE-JUICE DIET.

BIRMINGHAM, Ala., June 30.—After trying prohibition four years and then limited saloons four years, this state again becomes totally dry on the stroke of midnight to-night.

Although extra police precautions were taken to prevent any disorder at the wake of the liquor business, the officers had little to do during the early part of the day.

The law which makes Alabama totally dry was passed about six months ago by the legislature, and allowed the liquor men until to-night to get their affairs in shape and go out of business.

Along with this law measures also were passed prohibiting the advertising of liquor within the state and making it unlawful for express or railroad companies to accept shipments to firms or individuals in excess of two quarts every thirty days.

These bills were designed to prevent the state being flooded with literature and wet goods by mail-order houses outside the jurisdiction of Alabama courts. Both measures have been upheld by the courts.

"GOD'S KINGDOM COMING."

Some years ago, while up in Puget Sound, Washington, my good friend H. A. March gave me a little experience of a wet-and-dry fight they had in their own county. After having a fierce battle the wets won out by a narrow margin, and a saloon was opened up not far from Mr. March's home; but, to the great astonishment of everybody, it did not pay expenses. In fact, it starved out in just a few months. Public opinion had got ahead of the law in spite of the trickery and cheat of the wet side. There was nobody to buy the drink after they had won the battle, as they supposed. Well, I have been watching for this very thing. With the advance the world is making, it would be strange indeed if public opinion did not starve out some of the saloons after paying $1000 or more license.

Below is a clipping from the *Union Signal:*

100 MILWAUKEE SALOON-KEEPERS TO ABANDON BUSINESS.

It is reported by the Philadelphia *North American* that more than 100 saloonkeepers are to go out of business on July 1. This information is said to be contained in the annual report concerning saloons sent to the city council.

Just now I read in the *American Issue* that the Board of Health of the great city of New York has decided "It is as necessary to fight drink as it is to fight an epidemic." Does not that sound sensible, even if it has taken years to find it out and arrive at such a conclusion? God's kingdom *is* coming.

THE FOOT AND MOUTH DISEASE NOT THE WORST "MOUTH DISEASE" AFTER ALL, ETC.

The following is clipped from *The Day*, of New London, Ct.:

Can any argument prove that the one deep need of New London is not an ocean terminal, but a termination of the power that turns men into bleareyed soaks, as Billy Sunday puts it? It is not a college for training the minds of our daughters how to think correctly, but a civic conscience that will safeguard the homes of the men our daughters will marry.

It is stated that the hoof and mouth disease broke out among cattle fed on the slop and refuse of distilleries. But one has only to listen to the vile language of rum-filled men, and he can trace the origin of a worse "mouth disease" than that of an ox. Billy Sunday says that "alcohol will remove the stains from summer clothing. One has only to walk around the rum-cursed sections of New London to see that alcohol will also remove the clothing as well as the stains. Visit the pawn-brokers' shops, and you will see that alcohol can remove a ring from a woman's finger, a watch from her husband's pocket, tools from the workman's chest, and, worst of all, clothing from the children's backs."

I appeal to the manhood of this beautiful city to rise in their true strength and move this remover of the best things we have in our homes. The saloonist insists that the liquor business is "good for business." But he cannot prove that it is good for any business under the sun but that of the undertaker. REV. FRANCIS ADAMS.

RETURNING THE EMPTIES.

Collier's Weekly says:

Rev. E. M. Evans, of the Trinity Methodist Church, Des Moines, Iowa, got one of those circular letters booming "Old Bob Adams" whisky. He printed a reply in the Des Moines *Register and Leader*, that should interest every intelligent man whose talents are being misused in the booze business:

"I note you pay the freight on returned empties. I should like to send you a full carload of empties if you will honor your agreement. I suppose the freight will be much cheaper on full carload lots. To be honest with you, the empties are not in first-class condition. They consist of empty men—empty of manhood, energy, ambition, prospects, self-respect, and necessities of life—empty head, empty heart, empty soul, empty stomach; also empty women, empty of womanhood, refinement, modesty, and hope. Will it be worth while making the return of this carload of empties? Will this carload of empties be worth the freight to you?"

Do you haul back your empties, Mr. Respectable Distiller, or are you dumping the junk of them on the jail and the poorhouse?

CINCINNATI, AND WHAT THE CITY IS DOING TO KEEP UP THE OHIO PENITENTIARY.

We clip the following from the *American Issue* for July 23:

Mr. R. A. Mack, Cincinnati, Ohio—

My dear Sir:—I am the matron of the woman's department of the Ohio Penitentiary, and I desire to say there are more prisioners from Hamilton County in the woman's department at this time than from any other county in the state. One-fifth of our population are from Hamilton County, and at least 85 per cent of the prisoners in the institution are here from drink. Sincerely,

CORA R. WELLS, Matron Ohio Penitentiary.

THE FLYING-MACHINE—A NEW USE FOR IT.

When I was having such an enjoyable time in being with the Wrights when they made their first experiments, my enjoyment was greatly marred on being informed by Wilbur Wright that the flying machine would probably be of more use in war than as a vehicle to assist commerce and travel; and it has saddened my heart again and again to see this prediction fulfilled before my eyes. Well, just now I find the following clipping in *Farming Business.*

HUNT FIRES IN AEROPLANE.

Jack Vilas has received an appointment as forest ranger, and will range the north woods of Wisconsin in his hydro-aeroplane instead of sitting on top of a 90-foot tower and looking at a limited range of country. By using his machine he can rise to such heights as to discover a fire 50 miles away, and quickly fly to the scene and report for re-enforcements if needed.

From the above it seems that this same flying-machine is destined to do great work in preventing forest fires from getting such a start as to destroy miles of timber, and sometimes almost whole towns and villages. May God hasten the time when the flying-machine will prove to be an aid to peace instead of an aid to war.

POULTRY DEPARTMENT

"SWAT THE ROOSTER," AND THEREBY SAVE $15,000,000 A YEAR.

The Department of Agriculture has just sent out a beautiful placard. At the top of the sheet we read:

"PRODUCE INFERTILE EGGS."

This placard contains eleven pictures of eggs that have been under a hen or in an incubator for different periods of time. As we cannot give the cuts we give the reading under them.

No. 1.—Fertile egg after 24 hours at 103 F.; fertile germ beginning to hatch; not perfect for food.

No. 2.—Fertile egg after 36 hours at 103 F.; blood ring formed; not good for food.

No. 3.—Fertile egg after 48 hours at 103 F.; blood ring not fully developed; unfit for market; will be thrown out by candler.

No. 4.—Fertile egg after 72 hours at 103 F.; blood-vessels of embryo chick clearly marked.

No. 5.—Fertile egg after 7 days at 103 F.; compare with infertile and fresh egg.

1A.—Infertile egg after 24 hours at 103 F.; no fertile germ; no blood ring; still good food; it would be still better if kept cool.

2A.—Infertile egg after 36 hours at 103 F.; compare with fertile egg under the same conditions.

3A.—Infertile egg after 48 hours at 103 F.; still good food.

4A.—Infertile egg after 72 hours at 103 F.; not an absolutely fresh egg, but useful in cookery.

5A.—Infertile egg after 7 days at 103 F.; still usable for food. It would be a perfect egg if it had been kept cool. Compare with fresh egg and fertile egg.

In the middle of the sheet occurs the following alarming information; and it certainly ought to be alarming to every farmer and poultry-keeper.

FERTILE EGGS COST THE FARMER $15,000,000 A YEAR

Farmers lose $45,000,000 annually from bad methods of producing and handling eggs. One-third of this loss is preventable, because it is due to the partial hatching of fertile eggs which have been allowed to become warm enough to begin to incubate.

The rooster makes the egg fertile.

The fertile egg makes the blood ring.

You can save the $15,000,000 now lost from blood rings by keeping the male bird from your flock after the hatching season is over.

The rooster does not help the hens to lay. He merely fertilizes the germ of the egg. The fertile germ in hot weather quickly becomes a blood ring, which spoils the egg for food and market. Summer heat has the same effect on fertile eggs as the hen or incubator.

INFERTILE EGGS WILL NOT BECOME BLOOD RINGS.

After the hatching season cook, sell, or pen your rooster. Your hens not running with a male bird will produce infertile eggs—quality eggs that keep best and market best.

RULES FOR HANDLING EGGS ON THE FARM.

Heat is the great enemy of eggs, both fertile and infertile. Farmers are urged to follow these simple rules, which cost nothing but time and thought, and will add dollars to the poultry-yard returns:

1. Keep the nests clean; provide one nest for every four hens.
2. Gather the eggs twice daily.
3. Keep the eggs in a cool dry room or cellar.
4. Market the eggs at least twice a week.
5. Sell, kill, or confine all male birds as soon as the hatching season is over.

NOTICE.

Valuable published information on the raising and care of poultry and eggs, and individual advice on these subjects may be obtained by writing to the Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.

A. D. MELVIN, Chief, Bureau of Animal Industry.

Approved:

D. F. HOUSTON, Secretary of Agriculture.

In addition to the above, *Poultry Life* in an article on the subject says a fertile egg will begin to germinate at a temperature of 90 degrees. If this is true, an egg that has been exposed to a temperature of 90 degrees down in Florida, here in Ohio, or anywhere else, for 24 hours, would become a rotten egg if kept long enough at a moderately warm temperature; and this same authority says, also, that an infertile egg may be under a sitting hen or in an incubator 21 days or more, and still be fit to eat.

Perhaps now I might mention something that I should otherwise have been a little backward about telling. Eggs that do not hatch, either under the hen or in an incubator, I boil and feed to the chickens; and I have never yet seen any bad effects from feeding boiled eggs that had been 21 days in an incubator. If the germ was started, of course the chicks will have "boiled chicken;" and the way they fight for it I have thought sometimes it might start cannibalism.

Well, in cutting open an infertile egg it looks so much like a good egg boiled that I have several times tasted of the yolk, but could find nothing unpleasant about it. In fact, this same poultry journal I have mentioned says that an infertile egg will stand a temperature of 103 for 21 days and still be fit for food.

Now, the above emphasizes particularly the fact that a hen should never under any circumstances be allowed to sit on eggs all night long. If you wish to get a reputation for good eggs, gather them every day sure, and twice a day is better. If the hen steals her nest, use the eggs in your own home. Second, find some place to store your eggs until they are ready to go to market where it is at least moderately cool. Do not leave them an hour in the sun in a warm room, and certainly not anywhere near a hot stove. If you have no cool cellar, and would like to keep your eggs several days, put them in a pail and hang them in the well, as we used to keep the butter in hot weather in the good old times.